VOL. XXV DECEMBER, 1941 No. 6

THE JOURNAL OF APPLIED PSYCHOLOGY

JAMES P. PORTER, *Editor*
OHIO UNIVERSITY ATHENS, OHIO

With a Board of Cooperating Editors
and

PAUL S. ACHILLES HENRY C. LINK
Associate Editors Representing
THE PSYCHOLOGICAL CORPORATION

SOME INTERESTING CONTRIBUTIONS IN THIS ISSUE:

DR. PAUL S. ACHILLES. Commemorative Address on the Twentieth Anniversary of the Psychological Corporation and to Honor Its Founder, James McKeen Cattell

DOROTHY HAZELTINE YATES. Some Clinical Findings and Psychoanalysis

B. V. MOORE. Analysis of Results of Tests Administered to Men in the Engineering Defense Training Courses

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PUBLISHED BI-MONTHLY BY THE EDITOR
OHIO UNIVERSITY, ATHENS, OHIO

PRINTED BY THE SCIENCE PRESS PRINTING COMPANY, LANCASTER, PA.

Entered as second-class matter at the post office at Athens, Ohio, under the act of March 3, 1879. Additional entry May 7, 1926, at the post office at Lancaster, Pa.
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The Journal of Applied Psychology

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The Journal of Applied Psychology is published bi-monthly. The subscription price is $4.00 a year. Single numbers $1.00 to $2.00, depending upon the number of pages. Remittances and business communications should be addressed to the Editor, James P. Porter, Ohio University, Athens, Ohio.

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Applied Psychology

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JAMES P. PORTER
Ohio University
With a Board of Cooperating Editors

VOLUME XXV
1941

PUBLISHED BI-MONTHLY BY THE EDITOR
Ohio University, Athens, Ohio
Printed by
THE SCIENCE PRESS PRINTING COMPANY
N. Queen St. and McGovern Ave., Lancaster, Pa.

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DR. PAUL S. ACHILLES
Manager and V.-Pres.

DR. J. MCKEEN CATTELL
Founder

DR. W. R. MILES
President

EDWARD L. THORNDIKE
Former President

Luncheon, Twentieth Anniversary, Psychological Corporation, November 28, 1941
Grand Ball Room, Hotel Roosevelt, New York City

COMMEMORATIVE ADDRESS ON THE TWENTIETH ANNIVERSARY OF THE PSYCHOLOGICAL CORPORATION AND TO HONOR ITS FOUNDER, JAMES McKEEN CATTELL

PAUL S. ACHILLES
Vice-President and General Manager

MR. Chairman, Dr. Cattell, fellow psychologists, and friends:

We are assembled here for three purposes. The first is to honor a great leader in science, Dr. James McKeen Cattell, who is also the founder of the Psychological Corporation. The second is to try to transmit in some degree the vision and spirit of that great leader to all of us and to future generations of psychologists. The third is to tell you briefly something of the history and achievements of the Psychological Corporation thus far, and to invite your suggestions this afternoon for furthering the progress of applied psychology.

At the outset I wish to express on behalf of the Directors and staff of the Corporation our pleasure at having you here and also our regret that many others who wanted to be here were unable to come. Such are some of the misfortunes of making Thanksgiving Day a moveable feast. I wish there were time to read all of the many notes of congratulation and good wishes to Dr. Cattell but Dr. Miles has already read you some that are typical. We wish especially to thank the members of each Panel who will take part in this afternoon's discussions for giving us so generously of their time. Panel Members—if I may address you personally for a moment—we are *all* eager to hear you discuss and throw light on the many

problems now facing us. Each of us, I am sure, wants to leave here better prepared to work on those problems.

Lest there be any confusion as to the province, or function, of the Psychological Corporation, let me say at once that its role is, very simply, to play a useful part in developing and promoting the useful applications of psychology. Some of the divisions of its work are represented by the topics for this afternoon's Panels. Hence, our guests on these Panels, whatever their business or professional connections, are co-workers with us, in the sense that we are all seeking to solve the many problems before us in the spirit and with the methods of science.

Our presence here to-day springs from the fact that twenty years ago Dr. Cattell had an idea. This sounds perhaps, Dr. Cattell, as though your ideas were very infrequent. But all of us who know you, and even those who only know *of* you, *know* very well that by any measure of reactions, the intervals between your good ideas are in the nature of twenty minutes, or twenty seconds, rather than twenty years.

But, the particular one of your ideas with which we are now concerned and which for many of us makes this a momentous occasion, was the idea that psychology might some day be worth its salt. More specifically, you thought that if psychology had useful applications, psychologists should be able to earn their own funds for research to still further increase its usefulness. You not only had the idea but you had the courage and faith to put it into effect. And you chose, along with Dr. Thorndike and the other original directors of the Corporation, several of whom I am glad to say are present today, not the easy, but the hard way of putting it into effect.

In other words, you believed *then, as I think we should all more than ever believe now, in the way of free enterprise and of making psychology stand the test of self-support.* You did not ask a foundation to subsidize your venture. Instead, you asked psychologists to bet on themselves and on the future of their science. You formed a business corporation and asked

psychologists to buy stock in it. There is still extant in the records of the Corporation a prospectus for that stock in which you wrote, "We shall mix our brains with our money to enhance the value of the stock and to earn our own funds for research."

Thus, in 1921, you issued a challenge to the efforts of psychologists and the Psychological Corporation was born. It offered no bonanza. You indicated clearly that its principal capital would be the ability of psychologists and their willingness to work. But even then, over one hundred fifty psychologists were willing to buy the stock at $10 per share, and you advised them that if they would get to work and keep at it, they might earn dividends for themselves and funds for the advancement of their science.

How has this vision of twenty years ago materialized? It is my privilege today to render to you, sir, a brief accounting and report on behalf of the many psychologists who have contributed to the success of your venture.

The task you set us was twofold. We must do work worthy of psychology and we must show a profit. To have failed in either respect would have meant defeat. I am happy to report, sir, that psychologists have not let you down. Today you have a going concern. There have been times, I must confess, when we were down-hearted. There was a time, for example, when the Corporation had only $450 in the bank and nothing much but a few sales of the good old Army Alpha Test for income. And, still later, there were debts amounting to over $11,000 to be paid off. But today, without ever having asked or received any subsidies other than the volunteer work of psychologists, your Corporation stands free and clear of all debts. Not only that, its gross receipts at the present rate are now over $300,000 annually. This may seem small in these days when billions of dollars are being tossed about, but we hope, sir, that in another twenty years the Corporation's income may be over a million dollars annually with ample reserves for research.

The chief item of cost in the production of your Corporation's earnings is, quite properly, the remuneration of psychologists for their work. Hence, I think it is gratifying to you and of interest to all of us to know that these annual receipts are shared in by over two hundred psychologists and over a thousand of their assistants and students. Some fifty persons now comprise the staff of the Corporation's New York and Chicago offices, sixteen of whom are professional psychologists. Supplementing these and rendering many valuable services are over one hundred seventy-five psychologists located in cities and towns throughout the country who are listed as the Corporation's Research Associates and who accept assignments of work from it.

For most of the work that they do for the Corporation, psychologists now receive compensation. However, the volunteer services of these psychologists have been, and continue to be, a big factor in the Corporation's success. A very conservative estimate of the value of this volunteer work, including the Corporation's own cash outlays for research and development, would easily exceed the sum of $50,000.

Let me next review briefly the principal activities from which your Corporation now derives its income. There are no sharp dividing lines between the fields of applied psychology, but, inasmuch as some specialization is always necessary, your Corporation now operates six nominally separate, but mutually helpful, Divisions. Fundamental to all of them is the concept of measurement, and particularly *"mental measurement."* This also was one of your many good and far-reaching ideas, and it constitutes today the basic foundation of your Corporation's structure. You were the first to use the term "mental tests" and to show how mental measurements could be made. As evidence of your remarkable foresight, I shall read here a paragraph which you wrote in 1890, more than fifty years ago.

"Psychology can not attain the certainty and exactness of the physical sciences, unless it rests on a foundation of experi-

ment and measurement. A step in this direction could be made by applying a series of mental tests and measurements to a large number of individuals. The results would be of considerable scientific value in discovering the constancy of mental processes, their interdependence, and their variation under different circumstances. Individuals, besides, would find their tests interesting, and, perhaps, useful in regard to training, mode of life or indication of disease. The scientific and practical value of such tests would be much increased should a uniform system be adopted, so that determinations made at different times and places could be compared and combined." (Article on "Mental Tests and Measurements."—*Mind,* No. 59, 1890.)

Need I say that psychology today is still going forward along those very lines? To illustrate and to be specific about the activities of one of the Psychological Corporation's most flourishing Divisions, namely its *Test Division*—this Division will sell in the current year over *two million* copies of various mental tests to schools and colleges, to Y.M.C.A.'s, to welfare and guidance agencies, governmental bureaus, and business organizations of all kinds. This sounds like good salesmanship. On the contrary, the Corporation has no salesmen and its policy is actually that of restricting the sale of tests, in so far as possible, to professionally qualified users. This Division is under the direction of Dr. George K. Bennett. The margin of profit on tests is very small. Hence the most gratifying aspect of this Division's growth is that the volume of its sales now enables it to maintain a research unit whose efforts are entirely devoted to improving existing tests and norms and the development of new ones.

Using tests as one of its chief tools, another Division of the Corporation, organized and directed by Miss Edith Margaret Potts, and known as the Testing Service Division for Schools of Nursing, will test this year approximately 10,000 young women who are applicants for training as nurses at over 200 hospitals and schools throughout the country. Here again,

research is the keynote and this Division has a fertile field for it in the many thousands of test records it has now accumulated.

And now we come to the Divisions whose work and problems are most closely related to the Panel discussions this afternoon. First, the Marketing Research Division, under the direction of Dr. Henry C. Link, who shares with Dr. Gallup and others pioneering honors in this field. For good or ill they have put public opinion polls definitely on the map and now the effort must be to improve the methods and to harness these polls and consumer surveys to more clearly constructive purposes. Here indeed is a powerful application of psychological techniques for social gain if rightly used.

Second, the Industrial and Personnel Research Division to which Dr. Richard S. Schultz has contributed much to advancement of the Corporation's work in this field. Not only in the present emergency, but for the long hard pull ahead, this division seems destined to play an increasingly useful role. It is busy today in work for many companies faced in the defense effort with ever more pressing problems pertaining to the selection, training and morale of employees.

And finally, a double division known as the Psychological Service Center. This provides the benefits of clinical psychology to *individuals,* in matters of educational and vocational guidance, and with regard to personal and family problems. It is headed by Dr. Link and is a double division in that its Associate Director, Dr. Rose G. Anderson, heads what is known as the Child Adjustment and School Service Division.

This, briefly, Dr. Cattell, is an outline in terms of present services of the outcome of your original idea. If there were time it would be a pleasure to me to mention, if I could, all of the psychologists who have helped to bring this about. It is the work of no one person and I am sure none will feel slighted if I mention but a few, and very briefly, some of the contributions they have made.

There are, for example, the past Presidents of the Corpora-

tion, all of whom are here today: Yourself, Bingham, Woodworth, Thorndike, Poffenberger, and now, Miles. All of you have given the Corporation generously of your time despite the demands of other full time jobs. Then there is also a chain of loyal secretaries who helped to steer the craft—Brimhall, Bregman, myself, Link and now, Freiberg. Treasurers we will skip, except to say that for quite a period of time there was very little money for them to look after. And then new energy came along in the dynamic form of Dr. L. J. O'Rourke, who is now one of our Directors. Dr. O'Rourke enabled the Corporation to tide over one of its darkest periods and begin to really make money. The story is too long to relate here, but the gist of it is that Dr. O'Rourke, via the Psychological Corporation, swept the schools from Maine to California and even Hawaii and Alaska with a Nation-Wide Study of English Usage. The schools willingly bought the tests which Dr. O'Rourke had devised for the purpose. O'Rourke and I had to borrow the money to have them printed—but they went almost as fast as we could print them, and we ended up with a profit and the schools with a better curriculum. Thus everybody was happy except perhaps the million odd pupils who took the tests.

Next I would mention the great contribution of Dr. Henry C. Link, who came to the Corporation in 1930 and by 1932, had the Psychological Barometers in operation. These barometers continue today as the oldest consecutive series of consumer and public opinion polls in the country. Dr. Link has done more than anyone else to make psychologists an important factor in marketing research and public opinion polls.

I would like here to mention and to praise every member of the Corporation's staff in both its New York and Chicago offices, and all of our Research Associates, but this is obviously impossible. I can only say that without them and their loyal cooperation the Corporation's achievements and present activities would be impossible.

None of us today can forget for long the grave international situation. I have here by chance, but most appropriately for this occasion, a personal letter from Dr. Charles S. Myers, who, like Dr. Cattell in America, has been for many years the leader in applied psychology in England. In the same year, 1921, that Dr. Cattell founded the Psychological Corporation here, Dr. Myers founded the National Institute of Industrial Psychology in England. The two organizations have similar aims and we have no better nor more understanding friends than our fellow workers in this Institute in London. Hence, I am sure you will want me to read excerpts from Dr. Myers' letter to me of October 12th.

"Dear Dr. Achilles:

I thank you very much for the letter I have lately received from you, dated September 3rd, and for the accompanying chart of the numerous activities of the Psychological Corporation. You are indeed to be congratulated on being able to put up such an excellent demonstration of its growth. Long may the Corporation prosper!

"I will give your good wishes to Mr. Frisby of our staff when I see him in London next week. He is at present engaged on a survey for the Air Force on its methods of training—quite a big job. The Fighting Services here are abundantly using the Institute's services—almost to its extinction as a civilian organization! They have absorbed the activities of all but one member of its vocational guidance staff and have only left us with three or four people for its industrial work. I suppose that we ought to feel flattered, but it means a vast reduction in income. Indeed we are running at a financial loss." (If I may interrupt my reading here, it is pertinent to remark that this may very well be what lies ahead of us for the Psychological Corporation in this country. It is my hope that whether in war or peace we may serve equally well. For lack of time I must omit the rest of Dr. Myers' letter except for his very interesting last paragraph.) He says:

"How wonderfully the United States and Russia are helping us in their different ways! It is now possible very dimly to envisage victory. But, personally, I think that the Germans will 'crack' as unexpectedly as they did in the last war, and that they have 'bitten off more than they can chew.' But none of us can afford to relax our efforts. Morale over here continues to be wonderful. It is in no small degree buoyed up by America's attitude. With kindest regards, Yours sincerely, Charles S. Myers."

And now, Dr. Cattell, it is my great pleasure on behalf of the Psychological Corporation to present you with an "*award.*" It is an unusual "award" but we feel that it is a most appropriate one. You wanted the Psychological Corporation to earn funds for research. You founded it for that purpose. It has done so. Today we announce that, as an award to you, the Psychological Corporation now establishes a series of grants-in-aid of research to be known as the James McKeen Cattell Grants. The purpose of these grants will be to enable work to be done on problems in applied psychology, in accordance with the plans of most merit, submitted by graduate students, to a committee composed of members of the Board and staff of the Psychological Corporation. These grants are not stipends. They are to be invested in the experimental work to be done. The first of these grants will be made in 1942, and the amount voted for the purpose by the Directors of the Psychological Corporation at their meeting this morning is the sum of one thousand dollars, to be distributed in four grants of $250 each.

Ladies and gentlemen, it is customary at the close of many gatherings in these times to sing the national hymn or anthem. I do not suggest that we do so here, but I wish to repeat one line that rings in our ears with unusual significance today. It is this: "Long may our land be bright with *freedom's* holy light." We have come here to honor a man who stands above all for freedom; for freedom of every noble kind, and espe-

cially for the freedom to be sought and cherished through scientific endeavor. I *do ask* that we all now *rise* in his honor, to greet him, and to pledge him our earnest endeavor to maintain and extend the *freedom of science.*

The above address was given at a luncheon meeting in the Grand Ball Room, Hotel Roosevelt, New York City, Friday, November 28, 1941, with Dr. Walter R. Miles presiding. Following the address the following panel discussions were held:*

I

I: To What Extent Can Public Opinion and Consumer Surveys Help to Chart the Future? DR. GEORGE H. GALLUP, Presiding.

II: Industrial Psychology Today and Tomorrow: How Can Psychology Best Contribute to our National Economy? DR. WALTER V. BINGHAM, Presiding.

III: Psychology and the Individual: What Are the Resources of Psychology in Maintaining the Morale and Effectiveness of the Individual? DR. WALTER R. MILES, Presiding.

* There will appear in the February issue of this Journal reports by members of the staff of the Psychological Corporation on each of the panel discussions, also the luncheon address by Dr. Edward Lee Thorndike entitled "A Few Words."

ANALYSIS OF RESULTS OF TESTS ADMINISTERED TO MEN IN ENGINEERING DEFENSE TRAINING COURSES

BRUCE V. MOORE
The Pennsylvania State College

WHAT is the nature of our young men in defense industries today? More specifically, what are the ages, extent of education, intelligence level, vocational interests, and personality traits of the men in industry who are interested in engineering defense training courses to prepare themselves for better jobs in industry? In attempting to answer this general question, a second one appears. Of what value are some of the tests and other measuring tools and techniques that have been proposed for vocational selection and guidance? We have had a welter of tests with general titles, such as mechanical aptitude tests, but with incomplete evidence of validity and few norms for specific occupations. This second objective of validating these tests and providing norms is not yet attained, but we have some evidence contributing to that end, and we have at least a partial answer to the first question relating to the nature of young men in defense industry, at least those who are ambitious enough to take training courses for improving their status. Since Pennsylvania is largely an industrial state with fairly congested population, and since The Pennsylvania State College already had a well established General Extension program, it was assigned by the United States Office of Education the responsibility of handling the Engineering Defense Training classes for 10,000 enrollees. In planning the program, money was provided for research which has been under the direction of the author.

Two main groups of students have been studied to date. The first group was registered in evening Engineering Defense Training courses during the second semester of the academic year, 1940–1941. In this group were 10,064 students of which number 7,802 were given a battery of psychological tests. These enrollees were supposed to have at least the equivalent of a four-year high school education. The second group consisted of 2,078 students enrolled and tested in full-time day courses during the intensive course of ten weeks this summer. These enrollees did have a four-year high school education, but were not planning to enter college. The courses they were taking were known as the Introductory Engineering Subjects, and were an attempt to condense certain portions of the freshman year of a college course into ten weeks. Our chief attention here will be given to the study of the prediction of actual achievement in physics.

For a study of the data let us turn now to the various tables and graphs. We shall first look at the data on the first group of approximately 10,000 enrollees in the evening classes. Table 1 indicates that 8,634 of these were born in the state of Pennsylvania; 1,087 were born in other states and possessions of the United States; 256 were born in foreign countries, the largest numbers being born in Italy, which supplied 50, and in Germany, with 31.

The average age of the group is approximately 28; and the distribution for age is found in Figure 1. The largest number of enrollees, 3,774, are found between the ages of 22 and 28.

TABLE 1
(Summary)
Birthplaces of Enrollees in Engineering Defense Training Evening Classes of the Pennsylvania State College Extension Services

Pennsylvania—8634	Other states and possessions—1087	Total, United States—9721
	Total, Foreign—256	
	GRAND TOTAL—9977	

Figure 2 shows a distribution according to extent of formal education. The range is all the way from less than high school to three years of graduate work. The category with the largest number of persons is four years of high school, while the average is close to one year of college. The conventional four years required for graduation from high school or from college

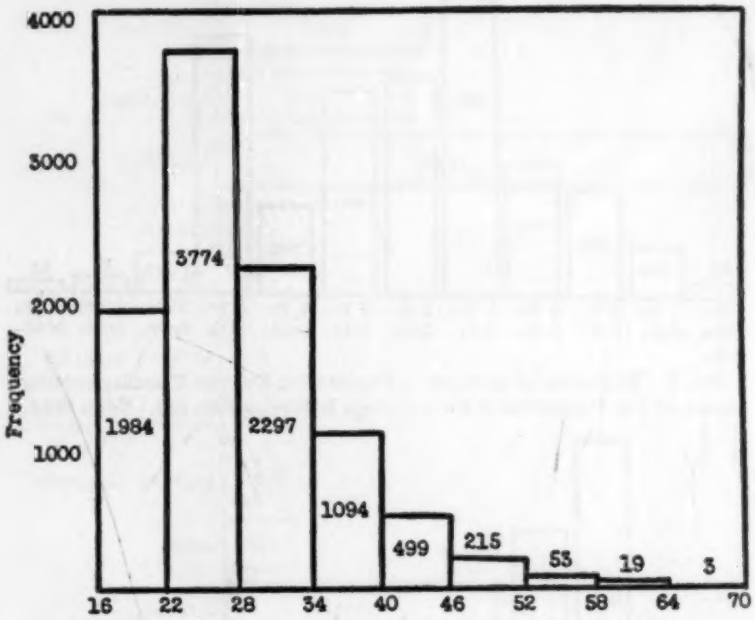

FIG. 1. Age distribution of enrollees in Engineering Defense Training evening classes of The Pennsylvania State College Extension Services. Total 9938.

are undoubtedly reflected in the high frequency of these two classifications. It is interesting to note, however, that there seems to be a tendency for people to drop out more frequently in the later years in high school, but that the tendency is reversed during the first three years of college by the fact that the largest number drop out in the first year of college.

The mean average salary is approximately $30 per week, which is also the upper limit of the modal interval (20–29); that is, the interval with the greatest frequency. Salaries per week is represented in Figure 3 with group ranges of $10.

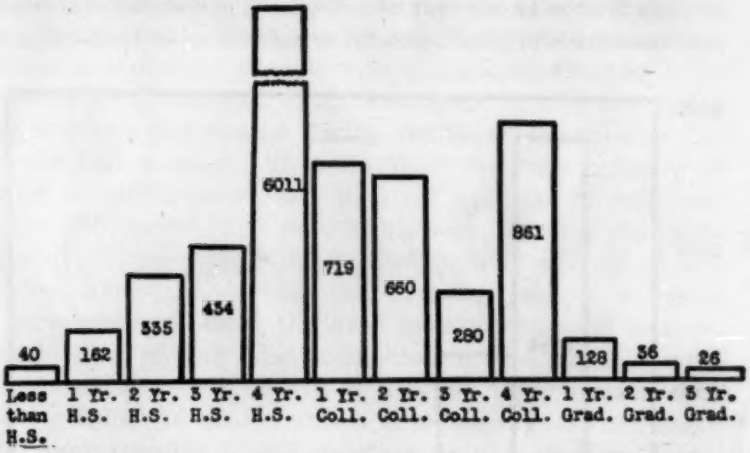

FIG. 2. Education of enrollees in Engineering Defense Training evening classes of The Pennsylvania State College Extension Services. Total 9692.

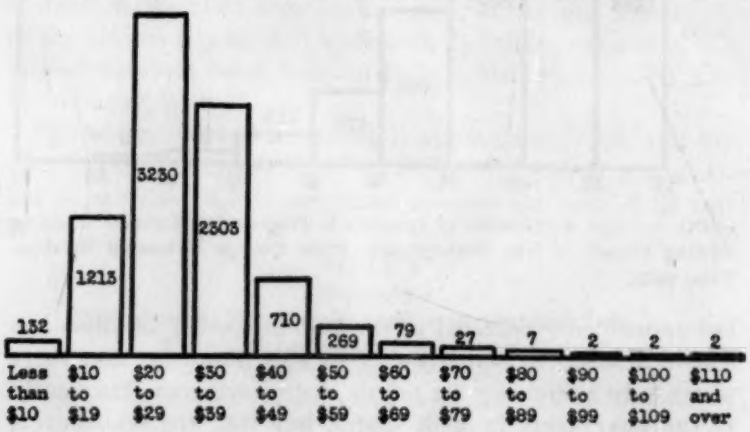

FIG. 3. Salary per week of enrollees in Engineering Defense Training evening classes of The Pennsylvania State College Extension Services. Total 7976.

Figure 4 represents the distribution in the various main groups of occupation according to the *Dictionary of Occupational Titles*. The total number of unemployed is 786, or 8

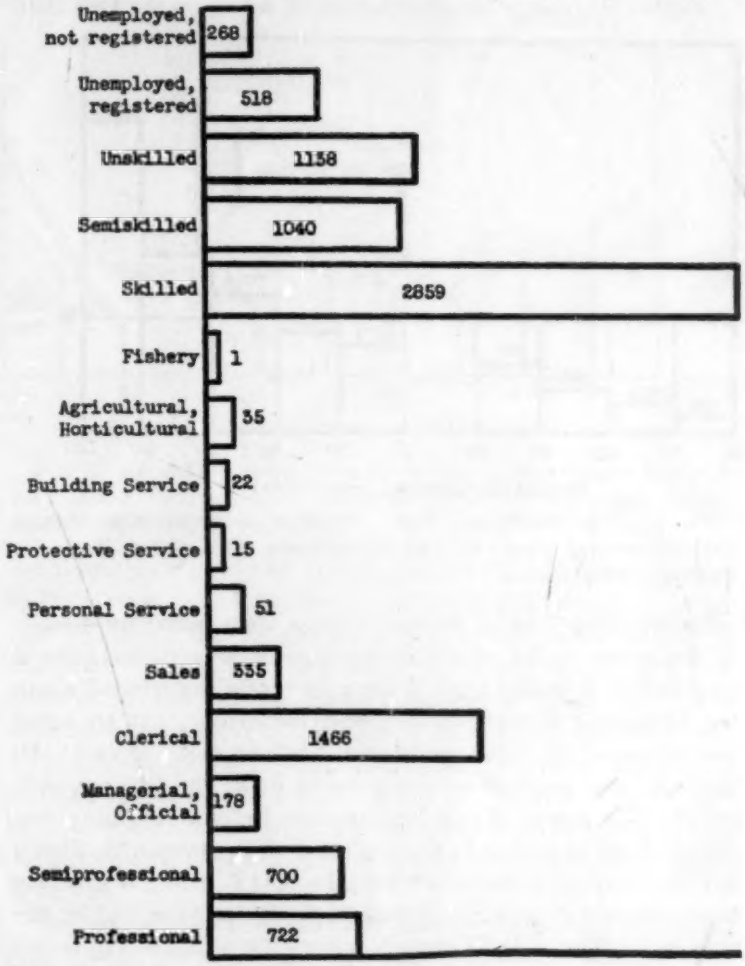

FIG. 4. Employment record of enrollees in Engineering Defense Training evening classes of The Pennsylvania State College Extension Services. Total 9348.

per cent of the total number of persons shown in the graph. The largest number, 2,859, of the employed are in the skilled classification.

Figure 5 presents the distribution of scores on the Otis Self-

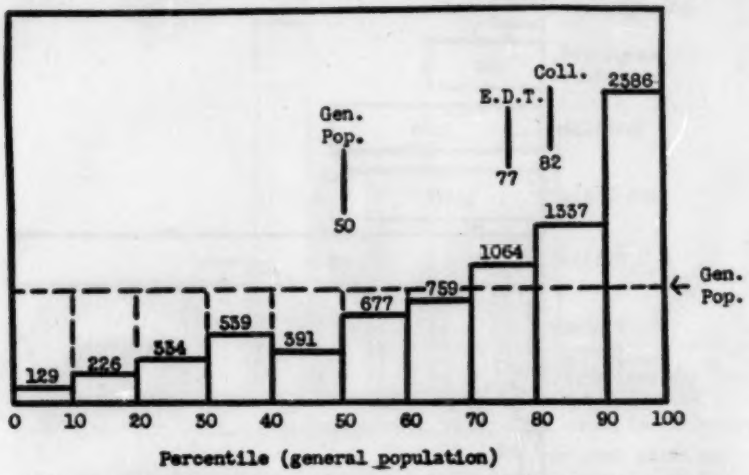

FIG. 5. Otis Intelligence Test. Enrollees in Engineering Defense Training evening classes of The Pennsylvania State College Extension Services. Total 7842.

Administering Test of Mental Ability, distributed by deciles. If the group under consideration were similar to the general population, it would tend to have its scores distributed along the horizontal straight dotted line, indicating that an equal percentage of the total group would fall in each interval. In this case also the median score would be at the 50 percentile point. The scores of the Engineering Defense Training employees tend to gather in the high end of the percentile distribution, indicating that as a whole the E.D.T. group is superior to the general population in mental ability as measured by the Otis test. The E.D.T. median percentile score is 77, corresponding to a raw score of 51, while the general population median of 50 is equivalent to a raw score of 42. The E.D.T. median is nearer to the median of college population with a percentile value in the latter case being 84 for a raw score of 53.

The Revised Minnesota Paper Form Board yielded results which are presented in Figure 6. The norms used in this test

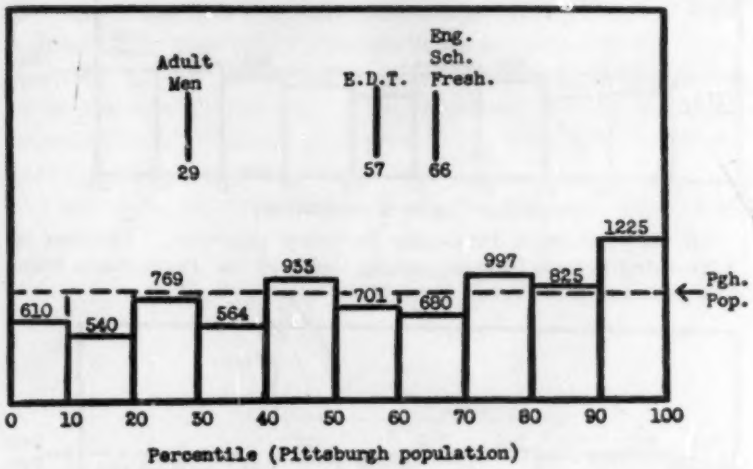

FIG. 6. Revised Minnesota Paper Form Board. Enrollees in Engineering Defense Training evening classes of The Pennsylvania State College Extension Services. Total 7844.

are based on a group of approximately 1300 E.D.T. enrollees in Pittsburgh. The distribution of the E.D.T. group is equivalent to that of the Pittsburgh E.D.T. group, which would be expected. The E.D.T. median of 57 is equivalent to a raw score of 41, but the median of a sample of adult men corresponds to a raw score of 34. The E.D.T. group compares well with a group of engineering school freshman who had a percentile rank of 66 and a raw score of 43. The E.D.T. student median is superior by 28 percentile points to the adult men and only 9 percentile points inferior to that of engineering school freshmen.

The Bernreuter Personality Inventory was scored for stability; that is, the reciprocal of neurotic tendency, and for self-sufficiency and for dominance. The distributions of the percentile scores are shown in Figure 7A for Stability, 7B for Self-Sufficiency, and 7C for Dominance. The horizontal dot-

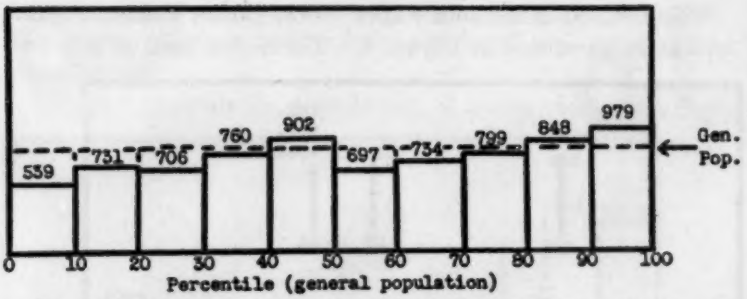

FIG. 7a. Bernreuter Personality Inventory (Stability). Enrollees in Engineering Defense Training evening classes of The Pennsylvania State College Extension Services. Total 7695.

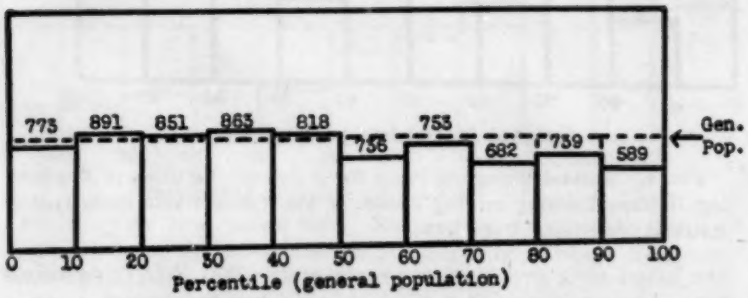

FIG. 7b. Bernreuter Personality Inventory (Self-Sufficiency). Enrollees in Engineering Defense Training evening classes of The Pennsylvania State College Extension Services. Total 7695.

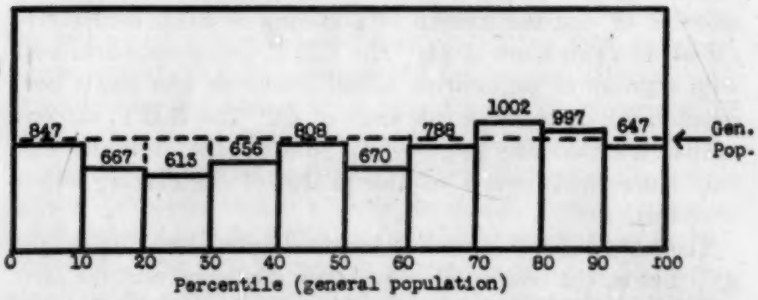

FIG. 7c. Bernreuter Personality Inventory (Dominance). Enrollees in Engineering Defense Training evening classes of The Pennsylvania State College Extension Services. Total 7695.

ted lines show the distribution in the general population. No significant departure from this dotted line presents itself in the case of the E.D.T. group. Such a result implies that with respect to the personality characteristics measured by the Bernreuter Inventory the E.D.T. enrollees do not essentially differ from a normal population. This, of course, is what might be expected as high scores on a personality scale are not necessarily desirable scores.

Figures 8a, 8b, 8c and 8d indicate the results of the Strong

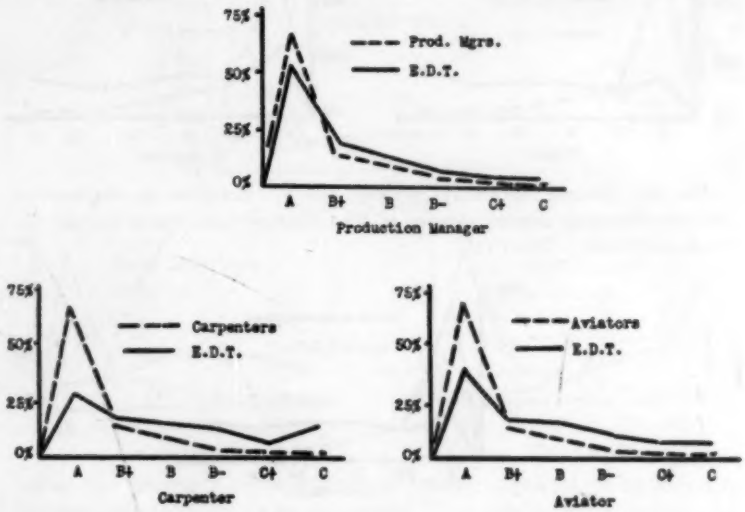

FIG. 8a. Strong Vocational Interest Blank. Enrollees in Engineering Defense Training evening classes of The Pennsylvania State College Extension Services. Total 7477.

Vocational Interest Blank checked by members of the group and scored for the occupations named in the figures. By means of the line graphs in these figures, we are able to compare the interests of the E.D.T. group as a whole with those of successful men in the occupations listed. In this series of polygons the dotted line in each case represents the distribution of the Strong Interest Blank scores of the men in that particular

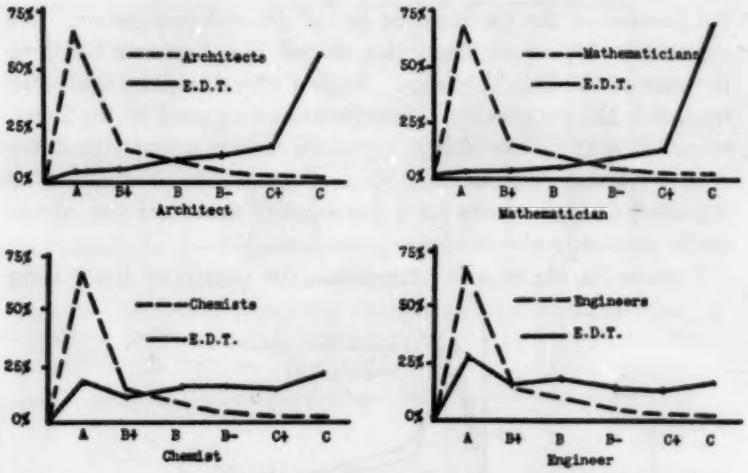

FIG. 8b. Strong Vocational Interest Blank. Enrollees in Engineering Defense Training evening classes of The Pennsylvania State College Extension Services. Total 7477.

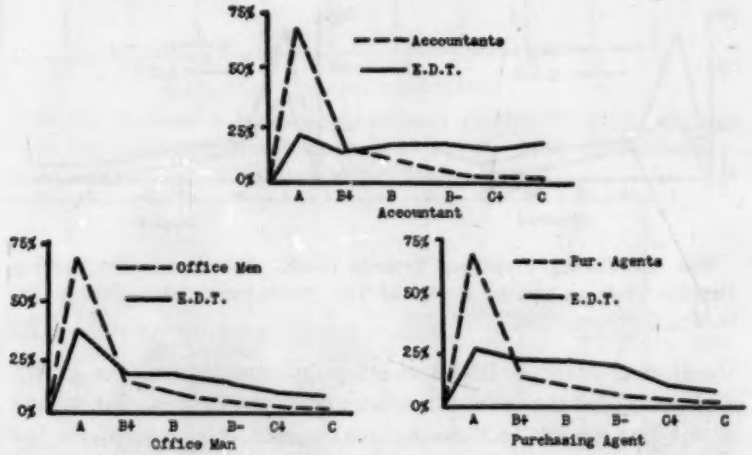

FIG. 8c. Strong Vocational Interest Blank. Enrollees in Engineering Defense Training evening classes of The Pennsylvania State College Extension Services. Total 7477.

field, based on Dr. Strong's norms. For instance, in the graph on the left of Figure 8a, the dotted line demonstrates how the interests of successful carpenters would distribute themselves on this particular scale. The distribution of the E.D.T. group is indicated by the solid line in each graph. Figure 8a gives evidence that the interests of these men at work in industry are similar to those of carpenters, aviators, and especially production managers. The later might be expected because many of these men are ambitious to be foremen. Figure 8b includes

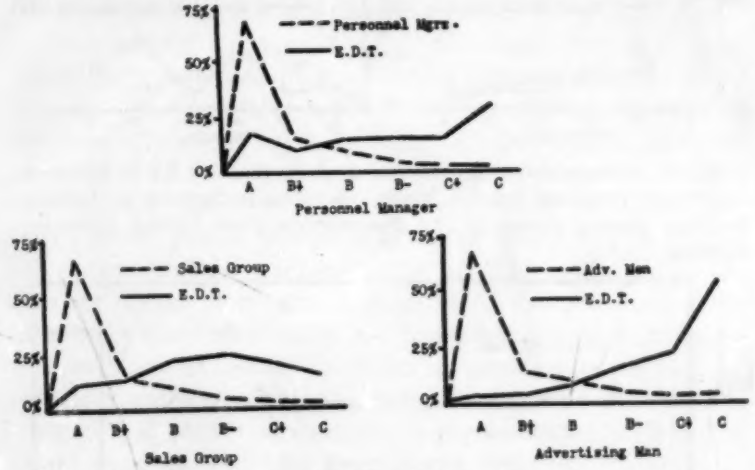

FIG. 8d. Strong Vocational Interest Blank. Enrollees in Engineering Defense Training evening classes of The Pennsylvania State College Extension Services. Total 7477.

graphs that indicate that some enrollees of the E.D.T. group have interests like those of engineers and chemists, but the great majority have interests very unlike those of mathematicians and architects. There is a considerable group of industrial workers who have interests somewhat like those of accountants, office men, and purchasing agents. This is revealed in the graphs of Figure 8c. The last group of occupations are distinctly different in that they have relatively no appeal to the great majority of the enrollees in the E.D.T. group. Figure

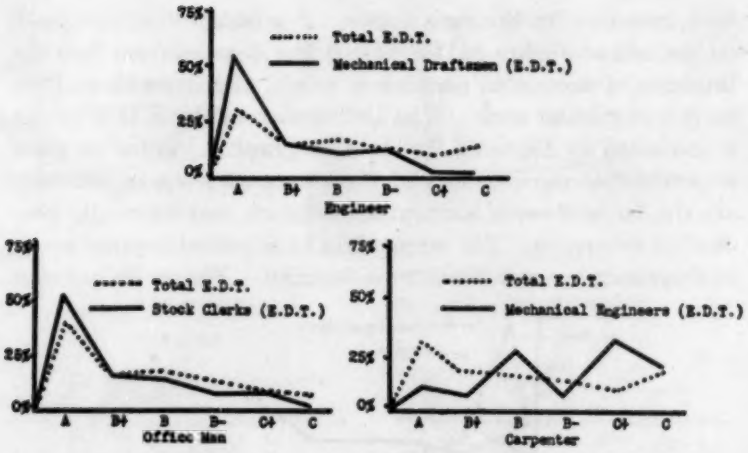

FIG. 9. Comparison of occupational groups with total E.D.T. group on the Strong Vocational Interest Blank. Enrollees in Engineering Defense Training evening classes of The Pennsylvania State College Extension Services.

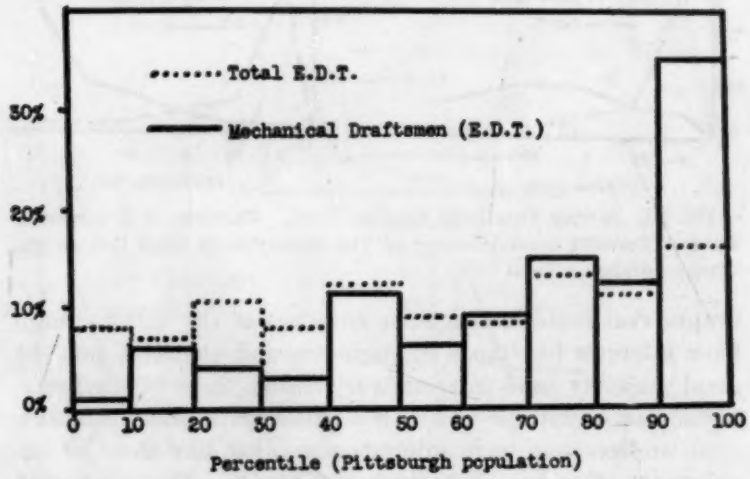

FIG. 10. Comparison of mechanical draftsmen with total E.D.T. group on the revised Minnesota Paper Form Board. Enrollees in Engineering Defense Training evening classes of The Pennsylvania State College Extension Services.

8d shows that a somewhat isolated group have interest in personnel management, but the great majority have no interest like that of the sales group, and have essentially a dislike for advertising.

Sub-groups of the total E.D.T. group were studied. Figure 9 contains graphs revealing that a larger percentage of mechanical draftsmen than of the total E.D.T. group have interests similar to those of engineers. Similarly stock clerks are more like office men. Mechanical engineers are not as much like carpenters as are other members of the E.D.T. group.

Of interest is the special ability of selected groups as measured by a test such as the Revised Minnesota Paper Form Board. Of interest, also, is the validity of this test and the relation of such ability to interest. Figures 10 and 11 throw some light on these questions. Mechanical draftsmen, that is men actually employed in that work and taking E.D.T. courses, made scores giving percentile ranks as distributed in Figure 10. Approximately three-fourths of them were above the median for the entire group, about thirty-five per cent getting above the ninetieth percentile. Somewhat the same tendency, although not as marked, is shown by enrollees in engineering drafting courses, Figure 11. This is contrasted with the distribution of ability of students in pre-foremanship classes to make scores on the Paper Form Board Test.

When the opportunity came to study a later but smaller group of enrollees in the introductory engineering courses this summer, an enlarged battery of tests was administered. There has not been time to analyze all these results, but special study has been made of the predictive value of these tests for success in the physics course. This was done in connection with a study by Dr. C. J. Lapp of the University of Iowa on the validity of tests of aptitude and achievement in physics and on the effectiveness of different methods of teaching and of different teachers of physics. Table 2 of this study presents the intercorrelations of these tests given at the beginning of the course, and the correlations with the criterion of success

in the physics course as determined by achievement tests given at the end of the course. Another form of the achievement test used in the criterion correlates best, .60, with achievement test in physics given at the end of the course. A close second,

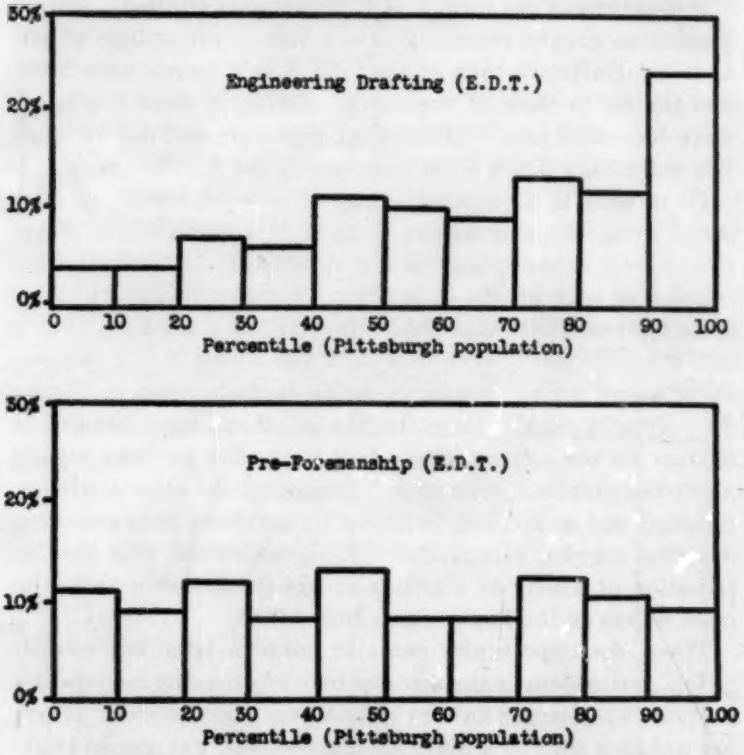

FIG. 11. Comparison of two classes on the revised Minnesota Paper Form Board. Enrollees in Engineering Defense Training evening classes of The Pennsylvania State College Extension Services.

however, is a simple arithmetic reasoning test devised for this purpose by the writer. Especially noteworthy is the negative correlation between interest in the sales group and success in physics, −.406, and between interest in the sales group and interest in engineering, −.616. These facts are shown again

TABLE 2

Intercorrelations of Aptitude and Achievement Tests in Physics. (Enrollees in Introductory Engineering Subjects Classes of The P

TABLE 2

Intercorrelations of Aptitude and Achievement Tests in Physics. (Enrollees in Introductory Engineering Subjects Classes of The Pennsylvania State College Extension Services. Total 292)

Selection of 11 variables from 24—66 r's selected from 300

Test	Coop. Mech. Test (1936 A)	Arith. Reasoning	Physics Aptitude — Interest	Physics Aptitude — Formulation	Physics Aptitude — Mathematics	Bennett Mech. Comp.	Otis S.A. Test of Mental Ability	Physics Aptitude — Reading	Strong V.I.B. — Sales Group	Strong V.I.B. — Engineer	Strong V.I.B. — Pur. Agent	Coop. Mech. (1936 B) plus Prob. Mech. Criterion
Cooperative Mechanics Test (Form 1936 A)	—	+.437	+.571	+.374	+.465	+.449	+.385	+.429	−.324	+.280	−.166	+.603
Arithmetic Reasoning		—	+.484	+.504	+.498	+.520	+.672	+.547	−.285	+.198	−.104	+.567
Physics Aptitude— Interest			—	+.401	+.477	+.596	+.476	+.409	−.383	+.352	−.274	+.539
Physics Aptitude— Formulation				—	+.597	+.307	+.466	+.399	−.239	+.235	−.146	+.527
Physics Aptitude— Mathematics					—	+.350	+.554	+.440	−.268	+.234	−.199	+.516
Bennett Mechanical Comprehnsion						—	+.445	+.419	−.374	+.345	−.141	+.516
Otis S.A. Test of Mental Ability							—	+.514	−.194	+.107	−.173	+.503
Physics Aptitude— Reading								—	−.185	+.143	−.138	+.435
Strong V.I.B.— Sales Group									—	−.616	+.345	−.406
Strong V.I.B.— Engineer										—	+.050	+.315
Strong V.I.B.— Purchasing Agent											—	−.205

[redacted] the partial regression weights for the [redacted] tests in predicting success in physics, more specifically mechanics, which combine to give a multiple correlation coefficient of .75 with the criterion. The interest in sales work contributes definitely with a negative weighting.

This study is not only for research, but is also a mass guidance and placement program. Each enrollee receives an individual report on his results with the battery of tests and an interpretation of these results. A large percentage have received promotions or other adjustments, and of the unemployed less than five per cent remain unemployed. We are receiving, on a simple rating scale, ratings of success on the job by supervisors, from which we hope to obtain some further validation of these tests and results.

TABLE 3

Partial Regression Coefficients and Multiple Correlation Coefficient of a Predictive Battery in Physics

Criterion (Subscript o): Total, Coop. Physics Test, Mechanics (Form 1936 B) plus Problems Mechanics Test

Cooperative Physics Test, Mechanics (Form 1936 A)	$B_1 = +.2936$
Physics Aptitude Test, Formulation	$B_2 = +.1913$
Arithmetic Reasoning Test	$B_3 = +.1470$
Bennett Test of Mechanical Comprehension	$B_4 = +.1276$
Strong Vocational Interest Blank, Sales Group	$B_5 = -.1216$
Otis S.A. Test of Mental Ability	$B_6 = +.0731$
Physics Aptitude Test, Mathematics	$B_7 = +.0534$
Physics Aptitude Test, Interest	$B_8 = +.0322$
Strong Vocational Interest Blank, Purchasing Agent	$B_9 = -.0218$
Strong Vocational Interest Blank, Engineer	$B_{10} = +.0097$
Physics Aptitude Test, Reading	$B_{11} = -.0021$

R 0.123 ..... 11 = .7514

Total 292

There is not space to go into a detailed analysis of any of these data, which are not even yet all compiled, but some conclusions of practical significance may be indicated:

1. There are thousands of men, most of them young and without benefit of college, who have approximately the ability

of college men and have an eagerness to benefit by these engineering defense training courses.

2. In general, these enrollees, with little guidance and no use of tests, tend to get into types of work and training for which they are best fitted.

3. The tests which we have of ability and of interests tend to be validated by agreeing with what we should expect to be the ability and interests of the groups studied.

4. Care must be used in generalizing. This is illustrated by the fact that many men in industry, including even engineers, are not interested in mathematics. Engineers may be of at least two types, the practical minded working with things, and the theoretical working with symbols.

A STUDY OF PUBLIC OPINION AND MORALE

HENRY C. LINK
The Psychological Corporation

THE main purpose of this study was to discover some of the forces influencing the morale of the American people. We hoped to reveal some of the causes for the lack of unity so apparent at the time. The interviews for this study were made between October 5 and 15, 1941. The present report was completed October 31.

Four thousand men and women were interviewed in their homes, in 81 cities and towns throughout the country. The interviews were distributed so as to represent a proper sampling of the urban or city population by income groups, sections of the country, men and women, and occupations. Two questionnaires were used alternately, so that 2,000 people were interviewed with each questionnaire. In view of the careful distribution, these two samples are large enough to indicate, within three or four per cent, what would be the results of a much larger number of interviews.

The present study is the seventh in a series of nation-wide studies conducted by the Psychological Corporation as part of its developmental program. The purpose of this series is not only to develop and test techniques in the field of consumer and public opinion research, but also to provide data of current importance to present and prospective clients. These studies are financed by the Psychological Corporation through sums set aside specifically for developmental research. Questions suggested by clients are included only on condition that the results be available for a report of this kind. A few clients, however, asked us to include certain questions for their

private use. For such questions a fee was charged, and these fees were helpful in reducing the substantial cost of this study.

This study was planned with the cooperation of our clients who not only suggested subjects for research, but specific questions. So many questions and ideas were suggested that it became necessary to make up two separate questionnaires. Certain questions suggested could not be included because they did not fit the pattern of the study or because, upon testing, they proved impractical. The two questionnaires finally used for the complete study were arrived at through a series of test interviews.

DEFENSE PROFITS AND PROFITEERING

In view of the bitter feelings about profiteering developed as a result of the last war, and in view of the strong feelings on this subject already aroused by the present emergency, a client suggested the following question:

"Who do you think is benefiting most by the Defense Program: The farmers, labor unions and labor, business companies?"

8% said, the farmers
40% " labor unions and labor
33% " business companies
7% mentioned others
12% had no opinion

Only 8% of the city people interviewed thought that the farmers were benefiting most. Labor unions and labor were considered the chief beneficiaries. This is especially significant in view of the fact that the majority of people interviewed belonged to this very class, that is, workers receiving a daily or a weekly wage.

In preliminary tests of this question a distinction was made between large business companies and small business companies. In this form, large business companies were considered the primary benefactors, with small companies hardly mentioned at all. A recent Gallup poll (*N. Y. Times*, Oct. 25) showed that, 'next to the Roosevelt administration and the Democratic party, big business, industrialists and profiteers' were believed to be most active in trying to get the country into war.

A corollary question was asked in the alternate questionnaire. This was phrased to emphasize personal benefits rather than group benefits:

"Is your family more prosperous today than two years ago, less prosperous, or the same?"

38% said, more prosperous
15% " less "
47% " about the same

The results of these two questions show a broad recognition of immediate benefits from the Defense Program, the first question directly, the second indirectly.

THE PEOPLE'S FEARS FOR THE FUTURE

Casting its shadow over all current issues and questions of defense and war are the fears for the future. Helped by the suggestions of certain clients, we tried to obtain some clues as to the nature and extent of these fears. The following questions were asked:

"There has been a lot of talk about inflation and its effect on the value of money. If you have any money in life insurance or in savings of any kind, do you think that money will be worth as much or buy as much two years from now as it does today?"

26% answered Yes
59% " No
15% had no opinion

The 59% who answered "No" were then asked about how much they thought their money would be worth. Their answers were:

39% thought about ¾'s as much
29% " " ½ as much
5% " " ¼ " "
2% " less than ¼ as much
25% had no opinion

The alternate questionnaire included the following questions:

"When this war is over do you think that the people of this country will be better or worse off than they are now?"

13% thought they would be better off
69% " " " " worse off
18% had no opinion

"How about jobs; will there be more, fewer, about the same?"

8% thought there would be more
74% " " " " fewer
11% " about the same
7% had no opinion

"Will taxes be higher, about the same, or lower?"

67% thought taxes would be higher
17% " " " " about the same
9% " " " " lower
7% had no opinion

"Will wages be higher, about the same, or lower?"

10% thought wages would be higher
20% " " " " about the same
60% " " " " lower
10% had no opinion

All these questions bear upon the specific, personal fears rather than such broad fears as the fear of dictatorship, of socialism, revolution, or changes in the economic or political framework.

THE FEAR OF SOCIALISM AND GOVERNMENT CONTROL

The fear has often been expressed that the present trend, if continued, would lead inevitably to state socialism. Indeed it has often been said that powerful elements in the government were using the defense emergency as a means of forcing the country into state socialism. Therefore, in our preliminary tests, we tried some questions aimed at this very point, namely, to discover the extent to which the public thought our present system was threatened. We even asked specifically whether or not government officials were using the emergency to push the country into national socialism.

Quickly it became obvious that very few people feared state socialism, or even knew what it really meant. Therefore, most questions of this kind proved impractical. The nearest we came to obtaining a direct expression of beliefs in regard to the effect of war measures on government was through this question:

"When the war is over do you think our government will be less democratic, more democratic, or the same as now?"

26% thought our government would be less democratic
19% " it would be more democratic
33% " " " " the same as now
22% had no opinion

Even when the war threat to democracy was expressed in this comparatively mild fashion, a majority thought that our government would be as democratic if not more democratic than now.

Two questions asked in an earlier study, and representing the possibilities of socialism in their extreme form, were repeated in the present study. One question was asked immediately following the other. They were:

"Do you believe the U. S. is on the way to communism?"
"Do you believe the U. S. is on the way to fascism?"

Answers	Toward Communism	Toward Fascism
	%	%
Yes	13	8
No	75	78
Don't Know	12	14

In October 1937 the answers to these same questions were:

Answers	Toward Communism	Toward Fascism
	%	%
Yes	14	9
No	64	66
Don't Know	22	25

Evidently there is a greater fear still of Communism than of Fascism, but neither fear is extensive. Moreover, the fear of Communism and Fascism in this country has declined since 1937, as evidenced by the larger per cent who answered "no."

FREE ENTERPRISE OR STATE SOCIALISM?

The majority of the people neither fear nor understand state socialism. If they understand it in terms of German and Russian socialism, this understanding is not carried over to the situation in this country. Our own inference is that the very attacks which this country has made against Nazism, Fascism, and until recently, Communism, have helped to create the impression that the perils of State Absolutism and Dictatorship

exist only abroad, not at home. In fact, the desire for more government control of business is greater now than it was three years ago:

"Should there be more or less government control of business?"

Answers	In 1938	In 1941	Change
	%	%	%
More government control	31	38	+7
Less " "	55	46	−9
No opinion or the same	14	16	+2

However, the extent of reliance on a centralized government is most fully revealed in an emergency situation. This may be seen in the answers to the following question:

"Who do you think can do the best job in straightening things out after the war: The government in Washington, business leaders, labor union leaders or others?"

47% said, the government in Washington
26% " business leaders
5% " labor union leaders
7% " all three together
17% mentioned others or had no opinion

When we analyze these opinions by four income groups, from those in the highest brackets to those in the lowest, we have the following revealing picture:

Answers	Highest	Upper Middle	Lower Middle	Lowest
	%	%	%	%
Government in Washington	33	46	48	52
Business Leaders	45	31	24	13
Labor Union Leaders	2	2	6	8

This is almost the widest difference between the opinions of income groups we have found in ten years of opinion research. No matter how interpreted, it is not an overwhelming vote of confidence in business leadership or in the power of our system of free enterprise to bring us out of the post-war emergency. It is an expression of reliance on the government in Washington to furnish the necessary leadership and planning. The extent of this reliance on government, especially in the large lower income groups, points toward more rather than less centralized control of business and economic life.

CONFLICTING ATTITUDES TOWARD THE WAR

By the time this report is issued a new situation may exist. Whatever the situation, it cannot ignore its antecedents. There has been much evidence of a lack of unity among the American people in regard to the war and our degree of participation. The popular polls of opinion have been only a few of the many sources revealing this lack of agreement.

In order to discover some of the causes for this lack of unity, and also to make a point in regard to the wording of questions in public opinion polls, three questions were developed for the present study. The first of these was:

"Which do you think would be the best thing to do":

Alternative Presented	% Answering
a) Have Congress openly declare war on Germany	14
b) Help England as much as we can but without getting into a shooting war	43
c) Make a serious effort for a peace conference immediately	13
d) Have the U. S. Navy convoy American ships with supplies all the way to England	18
e) Don't know or no opinion	11
(1% said, keep out altogether)	

The questions put to people in polls are sometimes oversimplified. For example, people are asked whether or not they favor labor unions. Or they are asked whether they favor our full entry into the war. Or they are asked to say yes or no on some other issue. Thus, by not presenting a representative set of alternatives, people's answers are artificially forced into limited grooves of thought which may not represent their true opinions.

The above question presents a group of alternatives, ranging from extreme intervention almost to extreme isolation. We do not claim that this is a perfect question or one producing the truest possible results. However, it represents a desirable attempt to avoid the over-simplification of questions in a complex field.

The answers to this question showed only minor differences by income groups and sections of the country. By sections of the country these results were:

	East	Mid West	South	Far West
	%	%	%	%
a) Declare open war	13	13	15	16
b) Help—no shooting	45	41	45	42
c) Peace conference	13	15	8	15
d) Convoy to England	18	18	21	14

The results by income groups showed larger variations than the results by geographic groups. The results were:

	Highest	Upper Middle	Lower Middle	Lowest
	%	%	%	%
a) Declare open war	18	13	11	17
b) Help—no shooting	44	47	43	38
c) Peace conference	8	12	14	16
d) Convoy to England	23	19	19	14

A question was asked on one phase of the war situation which has created considerable controversy and which may be another source of disunity, namely:

"Does the fact that Russia is receiving loans and munitions from the U. S. make you more enthusiastic for going to war against Germany or less?"

19% said, more enthusiastic
25% " less "
45% " neither
11% had no opinion

EFFECT OF DEFENSE PROGRAM ON QUALITY OF PRODUCTS

One client, an automobile manufacturer, was especially interested in the effect on the public of the copious newspaper discussion of material shortages due to the Defense Program, necessitating the use of substitutes in the production of consumer goods. As a result of our preliminary tests, the following question was agreed on:

"You know, of course, that due to the need of materials for the Defense Program, fewer autos, refrigerators, etc., will be made. How do you think this will affect the *quality* of the articles which *are* made: Will the quality be much poorer, slightly poorer, just as good, or improved?"

The response of the public to this question was as follows:

13% thought that the quality would be much poorer
35% " " " " " " slightly poorer
31% " " " " " " just as good
9% " " " " " " improved
12% had no opinion

The fact that 48% of all men and women thought that the quality of certain articles would be poorer as a result of the Defense Program may be of major importance from a merchandising and advertising point of view. Many companies are making strenuous efforts to maintain and even to improve quality. However, public psychology is such that, unless people are acquainted with the changes and improvements which manufacturers are now making, considerable sales resistance may develop.

DISTRIBUTION OF THE 4000 INTERVIEWS

The sample of 4000 interviews was distributed by broad geographic areas in accordance with the density of the urban population in these areas. The nine geographic divisions commonly used in census data were used as the basis for this distribution. However, for simplification in reporting results, these interviews were grouped in four major geographic sections. The distribution by these sections was:

Section	Number of Urban Centers	Total Interviews	% of Total Interviews
East	24	1580	39.5
Mid-West	29	1340	33.5
South	17	680	17.0
Far West	11	400	10.0
Totals	81	4000	100.0

As stated previously, an equal number of interviews was made in each city with each of the two alternative questionnaires. This means that the two samples of 2,000 interviews were exactly comparable by geographic distribution. This is also true for the distribution by income levels, sex, and age. In each city the interviews were distributed by income groups. This distribution was as follows:

Income Groups	% of Interviews
Highest incomes	10
Upper middle	30
Lower middle	40
Lowest incomes	20
Total	100

The bulk of the interviews was completed with adult men and women, representing the husband or the wife in each home. Only one interview was made in any one family. A representative proportion of younger unmarried adults was included in the sample.

To insure the widest possible distribution, a total of 545 interviewers was used, averaging not quite 8 interviews each. In each of the 81 localities the interviewers were under the immediate direction of a psychologist who assigned the interviews by streets and income areas.

SOME CLINICAL FINDINGS AND PSYCHOANALYSIS[1]

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AS a consulting psychologist, my aim has been to develop methods of psychotherapy which are essentially remedial rather than largely diagnostic, methods which aim toward prompt reconstruction rather than prolonged investigation. Though my practice includes much work with children, the conclusions here reached are based on the study and treatment of four hundred ninety-one persons over eighteen years of age, *i.e.*, all my more mature clients over a period of some ten years. About seventy per cent are under thirty-five, less than one per cent over fifty. Approximately thirty per cent are college students, largely from my own classes. With my heavy teaching load, it has become increasingly impossible to accept all applicants, so there has been some selection on the basis of urgency of difficulty, interest on my part in the problem, and the probability of reasonably speedy adjustment.

The clients' problems range from the psychoneuroses and incipient insanities of the more abnormal to the vocational, marital, parental, and personal difficulties of the more normal. The procedure has been to observe, question, test, and—above all—listen to, the client and often to his relatives and associates as well; to see that he observes the rules of health and has any necessary medical treatment; to suggest, or even arrange for and engineer indicated environmental changes, such as family or business adjustments or perhaps new interests and hobbies; and, at the same time, to make use of whatever specific psychotherapy seems appropriate. Since a large proportion of my

[1] Read at the 1941 meeting of the American Psychological Association with the title "Constructive Psychotherapy for Adults."

clients are sent by physicians, the very important physical basis has generally been taken care of in advance.

From the psychologist's standpoint certain conclusions emerge. First, a wide variety of disorders seems to call for a wide variety of remedies. No one method, such as psychoanalysis, appears to be adequate even for the more limited kinds of complaints usually treated by it. In fact, in my experience on the Pacific Coast, Freudian psychoanalysis in particular seems to be unsuccessful for many and often distinctly unpalatable.

May I cite one example, which is typical in results of a number. A middle-aged woman appealed to me for help in ridding herself of an overwhelming distress at noises, particularly automobile honking. She had been to a reputable psychoanalyst for treatment fifty-three times, but without any relief at all. The analyst told her that the trouble was due to a sex experience in very early life, though none was discovered. He refused to see her further when her savings gave out. He said that a year or two more of psychoanalysis might disclose the difficulty, but he was not sure.

My own procedure and conclusions were widely at variance with his. It seemed to me that the explanation lay in her whole history. Her mother, a psychoneurotic, had brought her up in a mire of ill-treatment. The girl married the first man who asked her in order to escape the mother's cruelties. But the husband proved even more harsh than the mother. For instance, he poisoned the young wife's much-loved dog in her presence just, as she said, "to be mean." One of his pet sadisms was returning in the very early morning hours with drunken cronies who joined him in horn-honking under her window. In time the woman divorced him and married again, but a pathological dread of noise, especially automobile honking, had taken hold of her. The second husband divorced her as insane on this account. In my opinion, her noise neurosis was due to an hereditary sensitivity, ill-treatment at home and later with the first husband, and the development of an asso-

ciation between noise, particularly a specific noise, and abhorrence and fear by the familiar process of conditioning. At least she got over her difficulties after sixteen hours of my non-psychoanalytic methods.

Psychoanalysis in this case was negative in effect. In some cases, unfortunately, it appears to be definitely harmful. Again let me give an example. An unmarried woman of thirty-six was escorted to my office by her anxious parents whose story made it clear that she had been neurotic at least since adolescence. When I saw her alone, she explained to me that she had been going to a psychoanalyst for some time, and that recently she had been "reborn" during a visit to him. She inquired if I had ever been reborn and expressed pity for me when I had to admit only one nativity. She gave me many details as to her rebirth, how she saw herself a weazened baby, a pool of blood around her, etc., etc. She also explained cheerily that she was fond of her mother but would like to murder her and marry father. In fact, she said that she craved sexual intercourse "with anything from a lizard to the psychoanalyst." I am quoting her exact words, but will spare you further details.

It became clear to me that the woman was not insane, as her parents feared, but had merely whole-heartedly accepted the suggestions and implications of the analyst and let her imagination go. He was a person in good standing as an analyst, and had no doubt done a conscientious piece of work. But the result was to unfit her totally for any form of usefulness. She had to give up the small job she had held because her mind was so taken up with these new ideas and the search after still newer ones. Moreover, her parents were not only greatly disturbed by her altered behavior, but much embarrassed by her conversation, which dealt continuously with sex in the usual Freudian manner. They had been reared in the pre-Freudian American tradition to regard sex matters as associated with privacy, also with romance and honor. They were shocked and repelled by the startling change in their daughter.

Now it may be that psychoanalysis is more suitable for some races and nationalities than for others, that it is successful more often with Europeans than with Americans, or perhaps with Jews rather than Gentiles. The clients who have come to me because of dissatisfaction with psychoanalysis[2] have been, without exception, American-born and usually of American or Canadian stock for several generations. Anyone familiar with ordinary, peace-time Europe knows that the European attitude toward sex is different from that in this country. Arranged marriages, the frequency of prostitution, mistresses, illegitimate children, all testify to a lesser respect for marriage and the intimate marriage relation. Conversation with Europeans more than bears this out. But to most Americans still romance, honor, and privacy in sex relations seem essential.

In Freud's writings, we get the different view which seems to mirror European sentiment. What Freud did find in man's "unconscious mind" was a mass of illicit motives that remind us of the covert and often highly unethical diplomacy of the Old World. Americans are certainly not free from concealed and objectional motives, but Europeans may outdo us in this respect. Many of you will remember that Woodrow Wilson, on his famous diplomatic mission after the last war, was regarded by Europeans as curiously naive and unsophisticated. What is true in international diplomacy may be true in other fields as well. But all this is merely a recognition of old and new world differences, not a criticism of Freud. We must admire him profoundly for his painstaking and thorough portrayal of the human mind as he found it, and recognize the dissimilarity in tradition and outlook that produced a rather non-American picture. It would be absurd to question the successes of psychoanalysis or its value to many persons. But to accept it as the only, or the best, method of psychotherapy may be equally objectionable. Psychotherapy must be adapted to the individual, and as long as there are national

[2] Seventy-four, or about 21 per cent of those who were not college students.

and racial, as well as individual, differences in human beings, one would expect different forms of treatment. All methods that bring satisfactory results should be welcomed and examined critically for their values.

In connection with my "reborn" matricidal client, there are some objections to psychoanalysis that appear to be definitely international. Therapists agree that the worst possible thing for a psychoneurotic is his persistent dwelling on himself, his incessant, self-conscious turning within. That is, in fact, his chief difficulty. We are indeed inconsistent as therapists if we deprecate introversion heartily, and then insist on intensive and prolonged introspection and aid and abet it in every way. To compel the patient to devote many hours to intense scrutiny of his own thoughts, especially the disagreeable and uninspiring ones, seems unwholesome in the extreme. If we as therapists know our business, should we not usually be able to diagnose without real detriment to the patient? The surgeon does not cut off an arm to learn the cause of a pain in the fingers. Nor is he likely to spend several years trying to find out what is the matter with his patient. Injury frequently lies in the length of psychoanalysis. Two or more years before one is ready to carry on again is a long time in man's brief span of serviceable years. Surely the therapist, with his knowledge of people, should be able to reach some practicable conclusions sooner.

What the psychoneurotic certainly needs is to get his mind off himself and that as soon as possible. One of our group here, Dr. Henry Link, recognizes this in his book *The Return to Religion*, which, as you will remember, stresses extraversion and unselfishness. Dr. Fritz Künkel with his "we" psychology has the same underlying idea. Interest either in other people or in impersonal activities, such as one's job, hobbies, sports, and so on—this is tonic and upbuilding. I need hardly remind you of the demonstrated value of occupational therapy in sanataria and institutions for the insane. One of the therapist's most important tasks should be cultivating his patient's

interest in some definite work or play, or both. Balance and perspective result from objective activity.

The fact is, analytic methods misplace the emphasis in more ways than one. The future not the past, what he wants to be not what he is, should dominate the mind of the patient. The human animal knows very well he is an animal, but he would like to be a first-class human as well. His past may not have been above reproach, rather messy in fact, but he wants a better future. He is fundamentally a creature of hope, and hope is implicit in the future. He hopes to replace fear, helplessness, muddled thinking with dynamic, constructive ideas, ideas that lead to a new way of life. He wants to develop and improve, to use any talents and powers he may have. He may be more than irked by the analyst's insistence on juvenile reminiscence. In corroboration of my own findings, let me quote from Professor Carney Landis' enlightening account of his psychoanalysis:

"I asked what I should talk about," writes Professor Landis, "and was told to allow my thoughts to wander and to talk of anything that came into my mind. But it was clear that the analyst was pleased by certain selected topics. . . . If I talked about my infancy, childhood, adolescence, or other early family relationships, no comments about resistance were heard. . . . Then I'd run dry. . . . Week after week of trying to talk with nothing to say became a veritable nightmare."[3]

The very name psychoanalysis implies its inadequacy. Not merely to analyze but to synthesize, integrate, and construct personality is the real business of therapy. As I understand them, the Freudian analysts *think* they do this, but do they? I have never heard of any tremendous creative output or remarkable character advance resulting from their work. Jung appears to succeed better in this respect. But as regards the Freudians, how much inspiration, productivity, and sanity of outlook does the patient usually get? We would all agree that

[3] Landis, Carney, "Psychoanalytic Phenomena," *Journal of Abnormal and Social Psychology*, 1940, 35, 21–22.

analysis in the sense of careful observation and the disentanglement of diagnostic possibilities from the patient's talk is highly important. All psychotherapists use it in some form. We feel that we owe much to Freud for his emphasis on causes and early origins. Science is necessarily inquisitive and exploratory. The point is there can be too much analysis and not enough reconstruction.

What the client wants is solution of his problems, to know what to do next. I am suggesting that such solutions do not lie primarily in recalling one's childish ideas and escapades, but in concentrating on the problem all one's most mature thought and employing the knowledge of an experienced clinical psychologist. Incidentally, it should be pointed out that a client's thoughts about the present and his hopes for the future are not to be scorned as sources of information for the therapist. And for the client, creating clear blueprints of the future seems to be a far more profitable activity than unearthing cloudy negatives of the past. The therapist's task is to develop new habits of living, new points of view, new mental sets. The time has come, as I see it, to use in therapy the many applicable findings of experimental and theoretical psychology, *e.g.*, the facts and procedures regarding habit, conditioning, emotion, hypnosis and suggestion, and so on. I know from experience that there is a rich harvest of practical value here, which is ripe for clinical test and supplementation.

As therapists we no doubt all aspire towards results that are both permanent and profoundly helpful. To date the religions have frequently done the most effective psychotherapy for the simple reason that they uplift and recreate. However critical we may be of them on some counts, this fact must not be overlooked. Man wants to look up instead of down. All nature is full of animal urges, but man alone has ideals and aspirations, though he is quite shy about admitting them. Can we not as therapists give our clients something that has all the advantages, and none of the disadvantages, of the old-fashioned religious conversion? Say a basic foundation in an abiding

and dynamic philosophy of life, or a simple and reasonable religion involving a problem-solving attitude? A religion or philosophy of life can be the most powerful motivating force there is. It can provide a solid substructure for other therapeutic building. By all means let us learn from Freud and recognize the enormous importance of motivation.

USING THE HUMM–WADSWORTH TEMPERAMENT SCALE

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THE authors of the Humm-Wadsworth Temperament Scale have been developing personnel techniques for the past ten years, working both co-operatively and independently. During this time a considerable amount of research has been done, not only on the reliability and validity of the Temperament Scale, but also on the most effective means of applying it to the study of personality.

Out of this experience some general rules have been established as sound.

The first of these is that any study of the individual, either for personnel or clinical purposes, must include a sufficient sampling of his personality to present a comprehensive picture. The consideration of intelligence alone, or skill or aptitude alone, or temperament alone, or physical fitness alone, or interests alone, or background alone; or, indeed, any consideration of personality which omits a single one of these important aspects is likely to lead to an error in the conclusions.

The second general rule has to do with judgment in personality studies. While statistical considerations in the form of norms are important in the interpretation of individual tests, they are seldom available for the interpretation of combinations of tests and even for the combinations included in test batteries. As a result we have borrowed a term from medical science which we call "Personality Syndromes" to identify the more familiar symptom patterns. Identification of these syndromes rests upon experience.

A third general rule is that no finding in the study of the

individual may be safely accepted without question. This usually implies that test results must be verified; that test showings should be validated; application blanks, etc., should be checked against available facts; that miscellaneous data should be examined.

A fourth general rule is that data of relatively little statistical importance sometimes becomes of very great individual importance. As a corollary it becomes important to set up procedures which will take account of such data. For example, epilepsy occurs in the general population in a relatively small percentage of cases, but is a very handicapping condition for the individual in which it does occur. In order to meet the implications of these general rules we have set up certain basic procedures in our work, with the conviction that anything less than these will not be adequate.

In clinical practice these minimum considerations are:

1. Family history (3 generations minimum)
2. Personal history from conception
3. History of difficulties in social and job adjustments
4. Physical examination (by physician)
5. Mental examination (Verified Humm-Wadsworth Temperament Scale)
6. Aptitude examination (Intelligence, skill, interests)
7. Statement of assets and liabilities of personality
8. Recommendations and forecast

In personnel work the minimum considerations are:

1. Application form (An item analysis of background and experience needed)
2. Humm-Wadsworth Temperament Scale
3. Test of skill or aptitude (in key-cases this includes interest)
4. Intelligence tests
5. Physical examination

In employee evaluation (this takes the place of rating) we consider the facts of the employee's work history by means of complete records. Each item considered must be verified.

Conclusions are drawn from data concerning which there can be no reasonable doubt. Employee evaluation is set up by means of an educational program for supervisors. It is subject to review by specialists from the personnel department.

An important application of the concept of "personality syndrome" has been found in the interpretation of the Humm-Wadsworth Temperament Scale. This Scale consists of eight measures of temperament or disposition included in one test-form of 318 questions. Results are reported on a Profile or psychograph for seven components of temperament. The eighth measure, a test of the internal consistency of answering, is separately reported.

GENERAL BEHAVIOR TENDENCIES EXPRESSED BY COMPONENTS

Normal indicates the integration, adjustment, and well rounded development of the subject;

Hysteroid indicates the amount of self-protectiveness, self-interest, and possessiveness;

Manic indicates the amount of cheerfulness, drive, and alertness;

Depressive indicates the amount of depression, retardation, and indecision;

Autistic indicates the amount of contemplation, retiringness, and flinching at social impact;

Paranoid indicates the amount of philosophical bent, durability of opinion, and defense of ideas;

Epileptoid indicates tendencies toward projects and inspiration toward achievement.

Since the possible combinations obtainable out of eight factors are 40,320 in number, it can be seen that adequate interpretation must depend, not wholly on quantitative consideration of scores and norms, but also upon recognizable relationships within these combinations, and upon qualitative considerations.

While it is true that "personality syndromes" suggested

by these component names have been often discussed[1] and described, they represent of themselves too great a simplification for practical purposes. For example, an individual who may be described as a "Normal Manic" is ordinarily cheerful, active, and alert; while one who may be described as an "Abnormal Manic" is ordinarily elated, restless and distractible. Then too there are many exemplifications of mixed temperament. Of individuals who have the Hysteroid Component ascendant in their temperament there are not only those who may be designated either "Normal Hysteroid" or "Abnormal Hysteroid"; but also "Hysteroid-Manic" and "Hysteroid-Paranoid"—to mention only those frequently occurring.

Because of these complicating factors it has become necessary for us to identify approximately one hundred "temperamental syndromes" and to set up regular procedures for their consideration.

In the regular interpretation of the Profile or psychograph obtained from scoring the Scale we follow these steps.

(a) Evidences of valid response to the Scale, compensating for suggestibility to the questions and conscious or unconscious defensiveness, or rejecting the Scale as invalid.

(b) Considering the strength of each Component and noting excessive or deficient strength.

(c) Considering the adequacy of self-control, confidence, and integration of the subject.

(d) Considering the social desirability of the temperament revealed.

(e) Considering the Component combinations and their "temperamental syndromes" revealed.

(f) Considering the assets and liabilities of temperament revealed.

[1] Rosanoff, A. J., *Manual of Psychiatry*, Sixth Ed., John Wiley & Sons, N. Y., 1927; Humm, Doncaster G., *The Analysis of Disposition or Temperament*, 1938; Humm, Doncaster G. & Wadsworth, Guy W., Jr., "The Humm-Wadsworth Temperament Scale," *Am. J. Psych.*, Vol. 92, No. 1, July, 1935.

(g) Summarizing the temperament as measured in the light of general adjustment to social situations (including job adjustment).

In order to carry out these procedures fully, especially in clinical work, we have been obliged to make an analysis of the psychological implications of the responses to the valid questions and code this analysis by subcomponent on a work sheet. By means of this device we have discovered tendencies on the part of certain subjects to have certain sub-components virtually missing. For example, some "Manics" lack cheerfulness; some "Normals" lack self-reliance; and so on. We have also discovered the tendency of certain traits to set up conflict; certain others to compensate for undesirable trends; and certain others to reinforce undesirable social attitudes.

This experience with organized programs, which includes the interpretation of tests and test batteries in combination with other data, has convinced us of the importance of this syndrome method. While we are no less advocates of sound statistical procedure and are fully aware that item analysis, norms, correlations and other parts of such procedure are indispensable, we are equally advocates of qualitative procedures which fulfill the requirements of scientific method.

Technical work has never had a completely adequate science to back it up. Every technician is obliged at times to resort to theory or hypothesis or even trial and error. Error is not so likely to occur on the basis of resorting to these as it is to failing to take account of their uncertainty. The role of judgment is to accord each its relative merits and to preserve a poise of assurance in keeping.

Thus it is that a physician feels obliged to consider all available data, subjective as well as objective in diagnosis. He asks the patient to report on the presence or absence of pain or discomfort, on real or fancied disablement, and on any other subjectively observed symptom. At the same time he utilizes chemical analysis, microscopic analysis, X-ray analysis, or any other pertinent objective measure. Finally he compares all

these data with those found in typical cases and makes his findings.

It seems that similar practice should be followed in the study of personality by psychologists.

When a set of procedures is employed which utilizes all the factors available and considers them from all angles, reserving judgment until weight of evidence forces conviction, the requirements of scientific method are most nearly met.

THE REVISED STANFORD-BINET SCALE APPLIED AS A POINT SCALE

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PROBABLY the most persistent complaint with regard to the use of the Revised Stanford-Binet Scale is that which deals with the excessive length of time and the great expenditure of effort required to apply it. This applies to both examiner and subject and would not be an important matter if the time and energy consumed resulted in securing a better all around picture of the mental status of the subject. In the opinion of many users of the scale this is not altogether true. Whatever advantage the revised scale has over the original scale is admittedly due to the introduction of new test items at points where the previous scale presented insufficient material to give a clear picture of the child's mental development.

In order to retain the year-level type of scale the authors arranged a series of six test items for each level up to that of adult. Whatever may have been the justification for this equal item arrangement and for the distribution of items at the levels at which they occur, users of the scale have apparently not been willing to accept it wholeheartedly. In practice the scale seems to bring about a wide amount of scattering which has little or no demonstrated clinical significance. There are frequent occurrences of double and multiple basal years and numerous cases in which several passes or failures occur beyond a level in which a single success or failure is registered. Then, too, there are frequent cases in which in two successive year levels only one success or failure occurs. In such cases 18 to 20 items must be given to secure two sig-

nificant scores. The application of the "all but one" rule beyond which further testing is largely optional is more hazardous in the Revised Scale than it was in the original. Because of these irregularities and time-consuming delays most persons, we believe, will agree that in many instances the law of diminishing returns operates too freely, and examiners are seriously tempted to stop the examination short of the limits set by the standard rules.

Since there is such a wide discrepancy between the child's mental age and the location of his successes and failures at given age levels, one finds it difficult to interpret the meaning of widely scattered failures. The present writer sees no real advantage in retaining the age level concept of the revised scale. It would be equally valuable if considered as a point scale without any reference to age levels, provided one were reasonably careful to extend the testing well into the upper and lower extremes of the subject's abilities. The demonstrated existence of large numbers of double and multiple basals compels the examiner, even now, to carry the tests into levels far beyond the standard limits of testing if he wishes an exact estimate of the child's ability to pass the various items.

If one is interested primarily in securing the child's mental age rather than in making an exact analysis of his successes and failures, a short cut method might be employed. We have found by an analysis of some 500 cases that very satisfactory results can be attained by using the existing scale as a point scale, using the present rules of scoring, and terminating the testing when one has secured five consecutive successes below the lowest failure and five successive failures above the highest success. This scheme materially shortens the time of testing, and gives a mental age score that correlates very highly with the ratings by the standard method. This result is accomplished by the tendency of the present scale to balance omitted losses at the low end of the scale with omitted passes in the upper levels. This method eliminates the large number of

apparently unnecessary tests at the extreme ends of the scale but leaves many critical tests—those on which there is a high degree of doubt as to success or failure—beyond the limits of testing. Mental age is established quite satisfactorily by this method but the absence of many "critical scores" leaves the interpretation of mental status somewhat difficult. If any one will re-score any large number of already completed test papers of Form L, using the above point scale method of scoring, we believe he will be surprised at the relative accuracy of the mental age results, and will find it much more satisfactory than the use of the standard "Abbreviated Scale."

It is the primary purpose of this article to present an improved point scale based on a re-allocation of the items of the Revised Stanford-Binet Scale, Form L. The source material upon which the revision is based is composed of the Form L test records of 440 children admitted to the Ohio Bureau of Juvenile Research at Columbus, Ohio. These children were of both sexes and include children of both the white and the black races. Their ages varied from 8 to 18, their mental ages from 5 to 21. Girls composed 30.7 per cent of the group, and negroes 12.5 per cent. Mentally they were somewhat inferior to the average group. Those who had IQ's below 75 amounted to 25.0 per cent; those with IQ's between 75 and 89, inclusive, amounted to 27.3 per cent; those with IQ's between 90 and 110, inclusive, amounted to 36.4 per cent. Those above 110 amounted to 11.5 per cent. Practically all of these were problem children, and many of them were more or less delinquent. Although they are not representative of the average school or community population they are quite representative of those elements of the population which are submitted to various types of clinics for mental examination. They are also the group in which wide individual variations would be expected, and for which a condensed scale would be most appreciated.

The entire study group was composed of cases drawn from the Bureau files in the consecutive order of admission. The

only cases rejected were those who were not given the tests or whose test records were in some way incomplete. The examiners who did the testing were all individuals who held advanced degrees in clinical psychology and who had at least one year of full time experience in clinical testing.

The first step in securing data for the re-allocation consisted of an item by item tabulation of each plus and minus response for each individual in the study. These were grouped according to the mental ages of the subjects, and percentages of success or failure calculated for each mental age group on each individual item. The mental age groups were then compared with each other according to level and to item. It was found that the test items presented an extremely variable picture. Some items belonged very definitely at a particular mental age level, others were characteristic of no particular age, but of a narrow range of years; and still others scattered so widely over large numbers of years that they had only a very general relation to any particular mental age level. Some of the items of this latter group had been in the original scale, and by long usage had proved to be of too much value to be omitted from the new scale.

On the basis of these findings a scale was constructed by first placing test items of definite location and difficulty in an ascending order. Secondly, into this series we introduced those items with narrow ranges of difficulty at the points where they fitted most closely according to the majority of the groups considered. Lastly, we inserted those items which had no close relationships with particular mental age levels at points where they would almost certainly be given by anyone working in the general area where they could be considered critical tests. The resulting scale is, therefore, not in any sense an age scale, nor is it a point scale of items that increase in difficulty step by step according to strict statistical determination. The optimum arrangement of items for widely separated groups is known to differ widely. In the opinion of the present writer, allocations based on elaborate statistical

determinations will prove less satisfactory for practical use than an arrangement based on more practical considerations.

The arrangement finally determined upon retains all of the materials of the present scale in an arrangement which approaches an ascending order of difficulty. It eliminates excessive marginal testing by centering critical tests with wide scatter at strategic points near the center of the area being tested. The directions for giving each test item remain unchanged.

POINT SCALE REVISION

Revised Stanford-Binet Scale-Form L

Note: Tests below year VI retain the original order of Form L. The 80 tests beginning with VI are arranged as follows:

(1)	VI–1	Vocabulary (5)
(2)	VI–6	Traces mazes
(3)	VI–4	Counts blocks (3 of 4) 3, 9, 5, 7.
(4)	VI–3	Missing parts: (4 of 5) Wagon, shoe, teapot, rabbit, glove
(5)	VI–5	Pictorial differences (3 of 6) (Also IV–6, 3)
(6)	VI–2	Chain of 7 beads (2 min., no error)
(7)	VII–3	Copies diamond (2 of 3)
(8)	VII–1	Picture absurdities (3 of 4) umbrella, saw, rabbit, rain
(9)	VII–4	Comprehends (2 or 3) broken late hits you
*(10)	VII–6	Repeats (1 of 3) 31859 48372 96183
(11)	VII–2	Similarities (2 of 4) wood—coal apple—peach ship—auto iron—silver
(12)	VII–5	Analogies (5 of 5) (also IV–6, 6) sister fish window mile knife
(13)	VIII–1	Vocabulary (8)
*(14)	VIII–2	Memory: Wet fall (5 of 6)
(15)	IX–5	Makes change (2 of 3) 10–4, 15–12, 25–4.
(16)	VIII–5	Comprehends (2 of 3) sailboat address baby
*(17)	IX–3	Memory for designs (1; or two ½) (Also No. 33)
*(18)	IX–1	Draws cut designs (1 of 2) a—— b—— (Also No. 50)
*(19)	VIII–6	Repeats (1 of 2, no error) Billy——Fred——
(20)	VIII–3	Verbal absurdities (3 of 4) locked in auto wheel two shots engineer

POINT SCALE REVISION—(*Continued*)

(21) VIII–4 Similarities and differences (3 of 4)
baseball—orange
airplane—kite
ocean—river
penny—quarter

*(22) X–5 Names 28 words in 1 minute.

(23) IX–4 Rhymes (3 of 4) head fair tree nose

*(24) X–2 "Frontier days"

*(25) X–6 Repeats (1 of 3) 473859 529746 728394

*(26) XI–4 Repeats (1 of 2, no error) "at summer camp . . .," "Yesterday . . ."

*(27) IX–6 Reverses (1 of 3) 8256 4937 3629 (See No. 43)

(28) X–1 Vocabulary (11)

*(29) X–3 Reads and reports (35"—— 2c—— 10m——)
N.Y / Sept. / 5th / a fire / last night / burned / several houses / near the center / of the city. / It took some time / to put it out./ The loss / was 50,000 / dollars / and 17 / families / lost their homes. / In saving / a girl / who was asleep / in bed / a fireman / was burned / on the hands.

*(30) X–4 Gives reasons (2 of 2, no help)
noisy in school
auto vs. bicycle

(31) XI–5 "Donald's pet"

(32) XI–2 Verbal absurdities (2 of 3)
judge
accident
last car

(33) XI–1 Memory for designs (1¼) (Same as No. 17)

(34) IX–2 Verbal absurdities (3 of 5) (Also No. 37)
Bill Jones
letter
fireman
small skull
icebergs

*(35) XI–6 Similarities (3 of 5)
snake, cow, sparrow
rose, potato, tree
wool, cotton, leather
knifeblade, penny, wire
book, teacher, newspaper

*(36) XIII–2 Repeats (1 of 2)
cow, sand, glass, chair, ball
grace, truth, worth, peace, doubt

(37) XII–2 Verbal absurdities (4 of 5) (Same as 34 above)

(38) XII–5 Defines (2 of 4) (Also No. 52)
constant
courage
charity
defend

*(39) XIII–1 Seeks lost purse

*(40) XIII–6 Chain of 9 beads (2 min., no error)

*(41) XIII–4 Comprehends (2 of 3)
hanging
visitors
Indian

POINT SCALE REVISION—(*Continued*)

*(42)	XIV–5	Orients self (3 of 5) Dir., faced when LH is E↑ Go W, turn R↑ Go N, turn L, then R↑ Go S, turn L,R, then L↑ Go N, turn L,L, then R,R,↑
*(43)	XII–4	Reverses (1 of 3) 81379 69582 52941
*(44)	XIV–4	Ingenuity (1 of 3) (Also No. 58) (7–4, 3) (8–5, 11) (4–9, 3) 5 min. ea.
(45)	XI–3	Defines (3 of 5) connection compare conquer obedience revenge
(46)	XII–1	Vocabulary (14)
*(47)	XII–3	Interprets pictures (Messenger)
(48)	XIV–3	Picture absurdity (Landscape)
(49)	XIII–5	Dissected sentences (2 of 3; 1 min. each) (a)—— (b)——(c)——
*(50)	XIII–3	Draws cut designs (2 of 2) (Same as No. 18)
(51)	XII–6	Minkus completion (2 of 4, 5 min.) (See also No. 56)
(52)	XIV–6	Defines (3 of 4) (Also No. 38)
(53)	XIV–2	Paper folding (Grasps rule in 6 foldings)
(54)	XIV–1	Vocabulary (16)
*(55)	A A–7	Repeats (1 of 2) "Red headed woodpeckers . . ."; "The early settlers . . ."
*(56)	A A–4	Arithmetic (2 of 3, 1 min. each) (a) (b) (c)
(57)	A A–3	Differences (2 of 3) laziness—idleness poverty—misery character—reputation
(58)	A A–6	Ingenuity (2 of 3) (Same as No. 44)
(59)	A A–8	Reconciles (3 of 6) (Also No. 69) heavy—light more—less tall—short outside—inside sick—well asleep—awake
(60)	A A–2	Code (1½, 3 min. each)
(61)	SA–1–2	Enclosed boxes (3 of 4) b–2–1, b–2–2, b–3–3, b–4–4.
(62)	SA–1–4	Reverses (1 of 3) 471952 583694 752618
(63)	SA–1–6	Similarities (2 of 3) farming—manufacturing melting—burning egg—seed
(64)	A A–5	Proverbs (2 of 3) burnt child kernel drowning man
(65)	A A–1	Vocabulary (20)
(66)	SA–1–3	Minkus Completion (3 of 4) (Also No. 51)
(67)	SA–1–5	Uses in sentence (2 of 3) benefactor, institution, contribution civility, requirement, employee attainment, fortune, misery

(68) SA–II–2 Gives reasons (2 of 2)
typewriters
criminals
(69) SA–II–5 Reconciles opposites (5 of 6) (Same as No. 59)
(70) SA–II–3 Repeats (2 of 3) 72594836, 47153962, 41935826
(71) SA–I–1 Vocabulary (23)
(72) SA–III–2 Orients self; Drive W 2m, R and N ½m, R and 2m (Dir?—— Dist?——)
(73) SA–II–4 Proverbs (2 of 2) Bird in hand? silk purse?
(74) SA–II–6 Recalls; Value of life (5 of 7)
(75) SA–II–1 Vocabulary (26)
(76) SA–III–3 Analogies (2 of 3) lion poplar income
(77) SA–III–4 Draws difficult cut design
(78) SA–III–5 Reasoning (5 min.) Height? Explains:
(79) SA–III–1 Vocabulary (30)
(80) SA–III–6 Repeats (1 of 3) 596138274, 92584736, 472916853.

Note: The starred items above are those which show an unusually wide scatter over an extended mental age range.

The Scale as re-arranged is presented herewith. It will be noted that we have not attempted any modification of the scale below year six. The 80 test items above that level are arranged in serial order with the original Form L placements indicated immediately thereafter. In scoring the tests each item retains its original value of 2 months of mental age for each test passed up to and including item 62. The Adult items above that point are given credit as follows: 4 months each on items 63 to 68, inclusive; 5 months each on items 69 to 74, inclusive; and 6 months each on items 75 to 80, inclusive.

The rule used for obtaining a mental age by this point scale is as follows: Assume 60 months credit for the five years below the point where the scale begins to operate. To this add all the credits for items passed, or assumed to be passed, up to the first failure. (Unless the first failure occurs above item 62 this will be the serial number of the item below the first failure, times two.) Lastly, obtain the months credit earned above the lowest failure in accordance with the values indicated in the above paragraph. The sum of 60, plus the assumed and earned credits below the first failure, plus the earned credits above the first failure is the subject's mental age in months. This sum divided by 12 will give the mental age in years and fractional years. Intelligence quotients are

obtained from the regular tables for the Revised Stanford-Binet Scale.

It was found that by using the above rules and considering only that portion of the scale limited by five consecutive successes below the first failure, and five consecutive failures above the last success that a very reliable mental age was obtained. In a few rare cases in which the above rules limited the items to be considered to less than 15, it was found advisable to increase the consecutive failures and successes to 6 in order to avoid occasional gross error.

When our 440 subjects had had their Form L records transposed into point scale equivalents and scored according to the rules indicated above we compared the results by the two

TABLE 1

Showing Extent of IQ Deviations by use of the Point Scale

M.A.	n	0	2	4	6	8	10	11–up
8	18	9	7	0	2	0	0	0
9	23	15	4	0	2	1	0	1
10	29	16	6	4	0	1	0	2
11	32	10	9	8	0	1	1	3
12	30	12	6	5	5	1	0	1
13	48	16	24	4	2	1	1	0
14	77	28	31	13	2	0	1	2
15	72	19	28	15	6	2	1	1
16	60	11	26	13	3	1	2	4
17	38	14	13	2	7	1	1	0
18	13	2	6	4	1	0	0	0
Total	440	152	160	68	30	9	7	14

Cumulative Comparisons:

	f	%
Identical IQ's	152	34.5
Within 2 points	312	70.9
Within 4 points	380	86.4
Within 6 points	410	93.2
Within 8 points	419	95.2
Within 10 points	426	96.8
Whole number cases	440	100.0

methods. It was found that the IQ's as found by Form L and the IQ's as found by the above point scale correlated very highly. The coefficient of correlation by the Pearson products-moments formula was .976, with a P.E. of .0022. The variations in the individual IQ's were also tabulated according to the mental ages attained by the subjects. The extent of these variations is indicated in Table 1 in which the mental age, the size of the group, and the number of cases varying within certain ranges are indicated. The number 0, 2, 4, 6, etc., at the head of the columns in Table 1 are to be interpreted thus:

0 indicates that the IQ's were identical; 2 indicates that the variation in the two IQ's ± 1 or ± 2 points; 4 indicates that the variations in IQ were ± 3 or ± 4 points, etc. It will be noted that there is a tendency toward a somewhat wider variation in the levels above year thirteen. Other studies of variations in IQ as attained by different scales, or different forms of the same scale, have found similar results. By noting the cumulative comparison for the entire group it is noted that 34.5 per cent have identical IQ's; that 7 in 10 cases have IQ's with deviations not more than 2 points; and that approximately 9 in 10 cases had deviations of not over 5 points in IQ. This compares quite favorably with the deviations obtained by the use of Form L and M which are usually considered interchangeable.

The saving in time can be estimated best by the savings in the number of test items required to be given to establish mental ages by the two methods. In rare cases no savings resulted by the use of the point scale. In others the savings were small. In many cases savings of 15 to 40 items were noted. Assuming that the length of a test period is directly proportional to the number of items required to be given to the subject, it will be noted that approximately one third of the time can be saved at any age level if any large number of cases are considered. Table 2 shows the average number of test items required to establish mental ages by both methods at various mental age levels. It also shows the average num-

ber of tests saved at each level and the percentages of savings which these saved tests bear to the original requirements of Form L.

TABLE 2

Showing the Average Number of Test Items Required to Establish Mental Age by the Two Methods

M.A.	Ave. form L	Ave. P.S.	Tests saved	Per cent saved
8 yrs.	33.0	21.9	11.1	33.6
9 "	33.1	22.2	10.9	32.9
10 "	40.0	25.3	14.7	36.8
11 "	41.0	25.9	15.1	36.6
12 "	39.3	25.1	14.2	36.1
13 "	37.7	24.4	13.3	35.3
14 "	38.2	25.9	12.3	32.2
15 "	35.7	23.4	11.3	31.7
16 "	37.6	24.9	12.5	33.2
17 "	38.9	24.3	14.6	37.5
18 "	39.2	25.4	13.8	35.2

It should be explained that the group of 440 children whose records were used to establish the relative difficulty of the test items is not wholly identical with the equal sized group of 440 cases on which the mental age and IQ comparisons were made, though approximately 90 per cent were identical. In reply to the possible criticism that the high degree of correlation between the two methods might be anticipated since the methods employ identical data of practically identical subjects we have used the same methods of comparison on 75 cases having no relation to the original group and find the amount of correlation, the saving in tests, and the extent of deviation almost identical with that already given. To a second possible criticism that the serial order of Form L permits no variation of sequence, we must reply that it is practically impossible to observe the strict order of sequence and follow the other rules of testing. Furthermore it is recognized by the authors of Form L. (See Terman and Merrill, *Measuring*

Intelligence, p. 56) that, aside from serial testing, other variations of sequence are sometimes more advantageous than the order provided by the scale.

In brief summary we have presented a point scale arrangement of the Revised Stanford-Binet Scale, Form L, based on data gathered from 440 children who are typical of the group usually submitted to the average psychological clinic for mental examination. The results indicated a very high degree of correlation between the IQ ratings of the original scale and its point scale re-arrangement. The individual variations between the IQ's by the two different methods yielded practically insignificant differences in seven of every ten cases, and variations of not to exceed 5 points in nine of every ten cases. Estimates of the time saved by the point scale method amount to an average approximating one third at all age levels. The point scale order provides for the application of a much greater number of "critical tests" than is provided by either the approved abbreviated scale of the authors, or by a point scale application of the scale in the present order.

It provides almost as adequate a picture of the child's mental development as does the original scale, and thus provides a better basis for interpretation than other schemes thus far advanced. Although it is still impossible to say that our results can be duplicated in other clinics we believe they are of sufficient importance to warrant experimental trial elsewhere.

THE RELIABILITY OF THE BELL INVENTORIES AND THEIR CORRELATION WITH TEACHER JUDGMENT

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VARIOUS aspects of adjustment aside from scholastic achievement are generally recognized by school authorities as important factors in the development of boys and girls. In recent years, there have been many attempts to devise instruments for the evaluation of different types of adjustment that may be classified under the broad heading of personality and character. As yet, not enough is known about the values of most of these instruments to warrant their adoption as a part of a school's regular testing program.

Of the several hundred tests and rating scales in the field of personality, the *Bell Adjustment Inventory*[1] and the *Bell School Inventory*[2] appear to be among the more promising evaluating devices. However, very few studies of these inventories have thus far appeared. Aside from the data given in the manuals of directions, no studies of the School Inventory and only four studies of the Adjustment Inventory have come to the attention of the writer. H. T. Tyler[3] studied the reliability and intercorrelation of the scores yielded by this inventory on the basis of the scores of students in the Sacramento Junior College and obtained favorable results. Turney and

[1] H. M. Bell, *The Adjustment Inventory*, Stanford University, California: Stanford University Press, 1934.

[2] H. M. Bell, *The School Inventory*, Stanford University, California: Stanford University Press, 1936.

[3] H. T. Tyler, "Evaluating the Bell Adjustment Inventory," *Junior College Journal*, VI (April, 1936), 353–57.

Fee[4] reported data on the use of the Adjustment Inventory in guidance at the high-school level. They obtained fairly high reliability coefficients, but their correlations of adjustment scores with the average ratings of fifteen judges were low. Pedersen[5] investigated the validity of the Adjustment Inventory as indicated by the scores and ratings of 380 freshman women at the University of Rochester. She obtained evidence for the validity of the home adjustment, health adjustment, and social adjustment scales, but there seemed to be no difference between the emotional scores of those rated maladjusted emotionally and the other students. Drought[6] found the relation of scores on the *Bell Adjustment Inventory* and the *Wisconsin Scale of Personality Traits* to discrepancies between predicted grades, as determined by high school average and scholastic aptitude test scores, and attained grades. The records of 750 college freshman men were used in the study. All the correlation coefficients were low.

The present article uses results for forty-three high-school pupils who were serving as subjects in an experiment in the writing of case studies by teachers and counselers in one high school. It might be thought that such a group would be heavily weighted with problem cases, but as a matter of fact the experiment in the writing of case studies had been planned so that low, average, and superior pupils would be included. It is believed that the group was a fair sampling of the population in that school.

The Bell inventories were administered so that the teachers would have the benefit of the results in their case-study work

[4] Austin H. Turney and Mary Fee, "An Attempt to Use the Bell Adjustment Inventory for High School Guidance," *School Review*, XLIV (March, 1936), 193–98.

[5] Ruth A. Pedersen, "Validity of the Bell Adjustment Inventory When Applied to College Women," *Journal of Psychology*, IX (April, 1940), 227–36.

[6] Neal E. Drought, "An Analysis of Eight Measures of Personality in Relation to Relative Scholastic Achievement," *Journal of Applied Psychology*, XXII (December, 1938), 597–606.

with the pupils. The inventories were scored at the Educational Records Bureau. Before the results were reported, all the teachers and counselors who were in close contact with the different pupils were asked to rate them on a nine-point scale for home adjustment, health adjustment, social adjustment, emotional adjustment, and school adjustment. Mimeographed sheets containing the scale, definitions of the terms, and careful instructions for procedure in rating were distributed to the raters.[7] Ratings were obtained in this way for thirty-three out of the group of forty-three pupils. Not all the pupils were rated by the same teachers and counselors. Since the enrollment in the high school was about two thousand, it was not possible to find a group of faculty members who were well acquainted with all these pupils. The number of raters for each pupil varied from three to eight.

When all the data were available, split-half reliability coefficients were computed for the different adjustment scales and were corrected by the Spearman-Brown formula. The scores

TABLE 1

Reliability of the Bell Adjustment Inventory and the Bell School Inventory

	This study Spearman-Brown r	*Tyler* Spearman-Brown r		*Turney & Fee* Retest r	*Bell Manual* Spearman-Brown r
		Men	Women		
Adjustment inventory					
Home	.838	.796	.827	.851	.89
Health	.831	.717	.797	.741	.80
Social	.932	.850	.876	.832	.89
Emotional	.875	.789	.839	.788	.85
Total adjustment	.899	.903	.906	.823	.93
School inventory	.917	.....	.....	.....	.94

[7] Acknowledgment is made to Dr. Galen Jones, principal of the Plainfield High School, Plainfield, New Jersey, and to Miss Adria Galbraith, in charge of tests and records in that high school, for cooperation in obtaining the data.

on each adjustment scale were then correlated with the average rating for the corresponding type of adjustment. The corrected reliability coefficients are shown in Table 1 with the reliabilities reported by Tyler, Turney and Fee, and Bell.

All the reliability coefficients found in this study are above .80 and those for social adjustment, total adjustment, and school adjustment are very close to or above .90. In general, the correlations for the Adjustment Inventory agree rather well with those reported by Bell, Tyler, and Turney and Fee, although the ones for health and social adjustment are a little higher than those found by the other investigators. There is especially close agreement between the reliabilities found in Tyler's study and this study for total adjustment.

It may seem surprising that the Spearman-Brown r's reported by Bell, Tyler, and this study are in such close agreement with the retest r's obtained by Turney and Fee. However, this is probably explained by the fact that in the Bell inventories speed is not an important factor. One can be fairly sure that the Spearman-Brown formula does not overpredict reliability in an inventory of this kind to the extent that it overpredicts in timed tests.

Both Bell's data and the data in this study indicate that the reliability of the School Inventory is above .90 and that it is slightly, although not significantly, higher than the reliability of the total score on the Adjustment Inventory.

On the whole, the data in Table 1 provide rather strong evidence that the reliability of the Bell inventories compares favorably with that of most tests of aptitude or achievement. The total scores on both inventories seem to be reliable enough for use in the guidance of individual pupils. With the exception of the social adjustment scale, the reliabilities of the separate scales are not as high as is desirable for individual predictions and guidance, but they are as high as that of the part scores on most other tests. From the standpoint of reliability alone, cautious use of all the scales with individuals is probably warranted, and extensive use with groups is clearly defensible.

Since the Bell inventories appear to be fairly satisfactory in reliability, the question of the value of these instruments boils down to a question of their validity. Do they measure what they are intended to measure? Useful evidence on this question is difficult to obtain because there are no thoroughly dependable criteria of validity in the areas covered by these inventories. The criterion assumed in this study is teacher judgment concerning adjustment, which is admittedly subject to large error but is probably of some value.

The correlations of the scores on the different scales with the teacher ratings of thirty-three pupils are presented in Table 2. The correlations obtained by Turney and Fee between scores and ratings are shown for purposes of comparison.

TABLE 2

Correlations between Scores on the Bell Inventories and Average Ratings Assigned to the Different Pupils by Several Judges

Scale	*This study* Teachers rating	*Turney and Fee*	
		First rating and first score	Second rating and second score
Adjustment inventory			
Home	.000 ± .118	.178	.294
Health	.449 ± .094	.416	.316
Social	.638 ± .069	.274	.311
Emotional	.318 ± .105	.295	.302
Total adjustment	.463 ± .090	.279	.215
School inventory	.536 ± .083	———	———

There is exactly zero correlation between the home adjustment scores of the thirty-three pupils and the composite judgment of the raters concerning home adjustment. The other correlations are positive, and all but the one for emotional adjustment are statistically significant. The correlation between the scores and ratings for social adjustment is fairly high.

The correlations found by Turney and Fee between scores

and ratings for home adjustment are positive but low. They are lower than the correlations for the other scales. The fact that in both this study and the one by Turney and Fee the correlations for home adjustment are the lowest among those found may not mean that the home adjustment scale is less valid than the other scales. It may mean simply that the raters were less well acquainted with the home situation than with the health adjustment, social adjustment, and emotional adjustment of the pupils.

The correlations obtained in this study for the scores and ratings on health, social, and emotional adjustment are higher than those reported by Turney and Fee, but the differences are small except in the case of social adjustment. The correlation found for total adjustment in this investigation is considerably higher than the corresponding correlations taken from Turney and Fee's article, but it is still rather low.

The correlation of scores and ratings in connection with school adjustment is higher than the correlation of ratings and total scores on the adjustment inventory. However, this difference may not represent a true difference in the validity of the two inventories. It may be due to chance or to better acquaintance of the raters with the school adjustment than with the total adjustment of the pupils in the other areas.

SUMMARY

In this article, data on the reliability of the Bell inventories and their correlation with the judgments of raters are reported and compared with the findings of certain other studies. Although the number of cases in this study is not very large, the results, when considered with those from other investigators, offer fairly convincing evidence that the Bell *Adjustment Inventory* and the Bell *School Inventory* have rather satisfactory reliability, as compared with the reliability of tests of academic aptitude and of achievement. The correlations between the inventory scores and judgments of teachers about the same aspects of adjustment tend to be low, although

four of the six correlations found in this study are statistically significant. The low correlations of the scores with teacher judgment fail to substantiate the validity of the inventories, but these correlations are not conclusive evidence against their validity, for the greater fault may exist in the criterion itself.

A much more defensible criterion against which to validate inventories of this type could be set up through the use of anecdotal records or a behavior description technique. This is suggested as a fruitful line of investigation for a comprehensive study covering a period of weeks or perhaps months.

TEST INTELLIGENCE AND FUTURE VOCATION OF HIGH SCHOOL SENIORS IN HAWAII

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IT seems to be generally agreed at the present time that our schools should strive to develop well-rounded personalities capable of adjusting in a satisfactory manner to environmental demands. This naturally involves, at the secondary level, some attention to vocational interests and aptitudes, as a majority of young people must make at least a tentative decision in regard to their future occupations by the end of this period. Those who must seek employment are faced with a decision as to the kind of work they want, and those who go on to higher education are forced into a choice of curricula which has a direct bearing, in most cases, upon their future life work. The American educational scheme permits of a later vocational selection than is possible in the educational organization of a majority of other countries, changes being possible even during the college career, but sooner or later a choice must be made, voluntarily or otherwise.

Different occupations call for different kinds or levels of abilities, and one of them is intelligence. It is obvious that the professions require a higher or different sort of intelligence than a multitude of the positions in business and industry—a kind of intelligence that seems to be fairly well represented by the scores on our so-called intelligence tests. We know now that the hierarchy of occupations represents various levels of mental ability, and that it is of great importance for high school students to be guided into vocational choices commensurate with their intellectual capacities.

The present study is an attempt to explore the situation in Hawaii, and deals with the relation of intelligence to chosen occupation, differences in intelligence between these occupational groups, and race and sex differences in anticipated future vocation.

A total of 2255 high school seniors, out of an enrollment of 2418 in the senior class of all secondary schools of the Territory at the time, were given the American Council Psychological Examination for High School Graduates, 1935 edition, and asked to indicate the occupation they expected to enter. Only 1272 (56.4 per cent) were able to state a definite choice. Some twenty different occupations were mentioned, but in order to insure adequate numbers for reliable comparisons it was necessary to reduce this number, and it was possible to combine all but 51 cases under the seven divisions of Agriculture, Business, Clerical Work (office), Professions, Semiprofessions, Skilled Trades, and Teaching. The last mentioned, while properly a profession or semiprofession, was kept separate as the number was adequate for statistical purposes.

The distribution of test scores and measures of central tendency and dispersion are given in Table 1. While there are rather large differences between the means of the groups, it is rather astonishing to see the wide spread of test scores in all distributions.

Almost the whole range is covered in each instance. Apparently these young people had had very little guidance in respect to a future vocation, at least as regards personal qualifications or abilities, or had ignored it in reaching their decisions. This is especially significant in Professions and Teaching,[1] as the large numbers of low scores suggest complete ignorance of personal ability and of the stringent requirements of these occupations. The students in the lower ends of these distributions should certainly have been made aware of the fact that they had little, if any, chance of qualifying. Obvi-

[1] Five years of university training are now required for entrance to the teaching profession in Hawaii.

TABLE 1

Distribution of Scores by Future Vocation

Scores	Agri-culture	Busi-ness	Clerical Work	Pro-fessions	Semi-profes-sions	Skilled Trades	Teach-ing
295–309	—	—	—	—	1	—	—
280–294	1	2	—	1	—	—	3
265–279	—	—	—	3	1	1	1
250–264	1	1	1	3	1	—	—
235–249	—	—	—	7	1	1	3
220–234	2	3	4	5	4	2	7
205–219	3	8	9	16	1	4	3
190–204	7	5	4	14	6	1	13
175–189	7	10	12	11	8	5	12
160–174	9	8	27	21	15	5	11
145–159	7	12	24	12	20	18	16
130–144	15	12	22	12	15	15	23
115–129	13	7	50	17	13	11	11
100–114	14	12	50	12	12	21	17
85–99	15	10	43	11	19	32	12
70–84	15	10	35	8	19	35	10
55–69	7	15	25	4	12	24	4
40–54	6	3	10	3	5	18	1
25–39	1	—	1	1	3	2	1
10–24	—	—	1	—	1	1	—
Total	123	118	318	161	157	196	148
Mean	124.25	133.25	117.50	156.75	124.87	103.85	146.00
Q_1	86.75	87.25	87.62	116.10	84.41	71.71	107.94
Median	119.04	132.50	113.20	145.63	123.65	93.44	141.74
Q_3	158.39	174.06	145.94	199.38	159.06	133.00	181.25
$SD_{dis.}$	49.200	54.660	42.030	54.780	51.585	44.865	50.970
SD_{mean}	4.436	5.032	2.357	4.317	4.117	3.205	4.190

ously they would be eliminated by college selection but probably only after considerable cost to all concerned. Proper guidance would have placed them in high school courses suited to their limitations, directed them toward vocations in keeping with their abilities, and prevented the inevitable frustration resulting from subsequent elimination.

An additional indication of the need for guidance is revealed by the proportions in the various occupations as contrasted with the proportions in these same occupational classifications for gainful workers in the Territory. This comparison is given in Table 2.

TABLE 2

*Percentages of High School Seniors Selecting Various Occupations Compared with Percentages Actually Employed in These Occupations in the Territory of Hawaii**

	Agriculture	Business and Clerical†	Professional and Semi-professional‡	Skilled Trades
Per cent of high school seniors choosing various occupations	10	36	38	16
Per cent of Territorial workers employed in these occupations	41	32	6	11

* Adapted from 1930 Federal Census.

† Combined in the Federal Census.

‡ Combined in the Federal Census and including Teachers.

While it is hardly to be expected that such a comparison would yield very close agreement, certain discrepancies are too glaring to be overlooked. Obviously too few high school seniors are expecting to enter Agriculture and far too many Professional and Semiprofessional pursuits. Almost one half of all gainful workers in Hawaii are engaged in some phase of Agriculture, but only 10 per cent of these high school seniors expressed a preference for this field. The Production of sugar and pineapples is the major activity of the Territory and offers the greatest opportunity for positions, but only a fraction of the group were interested.

Despite the large proportion of low scores in all distributions, there seems to be some relationship between intelligence and vocational choice, as Professions and Teaching show the highest average talent and Clerical Work and Skilled Trades

TABLE 3

Comparisons of Occupational Groups According to the Chances of a True Difference

Combinations	Difference between means	SD of Difference	Critical ratio $\frac{D}{SD_{diff.}}$	Chances in 100 that the true difference is greater than zero	Difference in favor of
Agriculture Business	9.00	6.709	1.34	91	Business
Agriculture Clerical	6.75	5.023	1.34	91	Agriculture
Agriculture Professions	32.50	6.190	5.25		Professions
Agriculture Semiprofessions	.62	6.052	.10		Semiprofessions
Agriculture Skilled Trades	20.40	5.473	3.73	100	Agriculture
Agriculture Teaching	21.75	6.102	3.56	100	Teaching
Business Clerical	15.75	5.557	2.83	100	Business
Business Professions	23.50	6.630	3.54	100	Professions
Business Semiprofessions	8.38	6.502	1.29	90	Business
Business Skilled Trades	29.40	5.966	4.93	100	Business
Business Teaching	12.75	6.548	1.95	97	Teaching
Clerical Professions	39.25	4.919	7.98	100	Professions
Clerical Semiprofessions	7.37	4.744	1.55	93	Semiprofessions
Clerical Skilled Trades	13.65	3.978	3.42	100	Clerical
Clerical Teaching	28.50	4.807	5.93	100	Teaching
Professions Semiprofessions	31.88	5.965	5.34	100	Professions
Professions Skilled Trades	52.90	5.377	9.84	100	Professions
Professions Teaching	10.75	6.016	1.79	96	Professions
Semiprofessions Skilled Trades	21.02	5.217	4.03	100	Semiprofessions
Semiprofessions Teaching	21.13	5.874	3.59	100	Teaching
Skilled Trades Teaching	42.15	5.275	7.99	100	Teaching

the lowest. It is fortunate for Hawaii that the Teaching profession is attracting such good material, as this augurs well for the future of the educational system and the ultimate welfare of the Territory.

The comparisons of the occupational divisions in terms of the chances of a true difference are given in Table 3. Fourteen of the twenty-one comparisons show complete reliability of the difference, and in the other seven cases all but one, Agriculture and Semiprofessions, show chances of 90 or better of a true difference. The Professional group is superior in all comparisons with complete reliability of the difference in all cases except with Teaching, and the Teaching group is superior in all contrasts, excepting Professions, with complete reliability of the difference in all cases except with Business where there are 97 chances in 100 of a significant difference. Agriculture and Semiprofessions are almost identical and somewhat below Business, while Clerical Work and Skilled Trades are at the bottom, although the Clerical Group shows complete reliability of the difference when compared with the Skilled Trades group.

Comparisons by race and sex according to percentage distributions under the seven categories are presented in Table 4. This table is to be read as follows: 12 per cent of the Caucasian males expected to enter some phase of agriculture; 8 per cent Business; 5 per cent clerical work; 55 per cent some Profession; 13 per cent a Semiprofession; 7 per cent a Skilled Trade; and 0 per cent Teaching.

The most noticeable differences are the large proportions of Caucasian males expecting to enter a Profession, Chinese females expecting to become Teachers, and Portuguese females expecting to enter Clerical Work. Clerical Work, Semiprofessions and Teaching account for the major portion of female selections, while Agriculture, Professions and Skilled Trades are most favored by the males, although Business and Clerical Work show fairly high percentages in some cases such as the Chinese and Portuguese. Comparatively few males expected

TABLE 4

Race and Sex Comparisons by Future Vocation

Race	Agriculture			Business			Clerical			Professions			Semi-professions			Skilled Trades			Teaching		
	Per cent			Per cent			Per cent			Per cent			Per cent			Per cent			Per cent		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Asiatic-Hawaiian	17	—	8	13	4	8	17	42	30	8	4	6	4	31	18	33	—	16	8	19	14
Caucasian	12	—	7	8	7	7	5	37	19	55	5	33	13	26	19	7	10	8	—	15	7
Caucasian-Hawaiian	27	—	8	10	9	9	7	42	30	30	2	11	7	23	18	16	6	10	3	18	14
Chinese	18	—	10	16	3	10	20	36	27	24	1	15	5	15	9	10	1	7	7	44	22
Japanese	19	—	12	13	9	11	18	38	25	14	1	10	4	21	10	29	8	22	3	23	10
Korean	16	—	8	8	7	7	12	29	21	32	3	17	—	39	21	28	4	15	4	18	11
Portugese	11	—	7	11	—	7	35	60	44	11	—	7	3	20	9	26	5	18	3	15	8
Total	18	—	10	12	7	10	17	39	26	21	2	13	5	23	13	23	6	16	4	23	12

to enter Teaching, which is unfortunate but in keeping with the general trend in the country as a whole.

SUMMARY AND CONCLUSIONS

1. This study presents material on 1272 high school seniors in Hawaii analyzed as to the relation of intelligence to future vocation, differences in intelligence between vocational groups, and race and sex differences in vocational choice.

2. There are differences in intelligence between the vocational groups, and the majority of these differences are significant as indicated by the Critical Ratios.

3. All distributions by future vocation show a wide range of scores, indicating a decided need for better guidance in the choice of an occupation.

4. Large discrepancies are apparent between the proportions of high school seniors choosing particular occupations, and the proportions of gainful workers actually employed in these occupations. This is especially true of Agriculture and the Professions.

5. Certain race and sex differences in anticipated vocation are indicated by varying percentages in the different divisions. The largest proportions of females expected to enter Clerical Work, a Semiprofession or Teaching, while the largest proportions of males were looking forward to Agriculture, a Profession or a Skilled Trade.

CONSUMER ATTITUDE TOWARD RETAIL STORES*

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THE transition from primitive man's method of wresting food and clothing from "nature in the raw" to our present-day "stop-at-the-store" habit has been in some ways a procedure from the complex to the simple. From the standpoint of inter-human relationships, quite the reverse has been true. This fact has long been recognized by advertising experts and even the small shop owners. However, of the large number of attitude studies made during the past few years, only a small percentage have dealt directly with the consumer. Attitudes toward war, race, or religion can hardly be of more importance than those which deal with the basic social relations of buyer and seller.

The problem of the present study was to obtain a measure of public attitude toward chain and independently owned stores. It was desired to obtain an index of the general attitude and some idea of the specific factors of influence contributing to people's attitudes toward these two types of stores.

A preliminary analysis of various types of stores was made and a considerable number of persons were interviewed to find out what they thought of certain stores. This not only gave some indication of the attitudes which might be expected but also, and more important, gave some indication of the "attitude objects" which might be most useful in such a study. From

* This study, carried on under the direction of Dr. H. H. Remmers to whom I wish to express my appreciation, is a partial fulfillment of the requirements for the Ph.D. degree at Purdue University. A complete report of this study may be found in the Library of Purdue University.

this procedure it became apparent that there were about six major areas of investigation to be dealt with. These were as follows: 1. merchandising; 2. material services rendered; 3. personnel of stores; 4. advertising; 5. general policy of retail stores; and 6. relationship to the community.

THE MEASURING INSTRUMENT

Various types of measuring techniques were considered, but it was finally decided to use a technique of scaled phrases of comparison based upon the results of a correlated study which was being carried on at that time (1). Fourteen phrases expressing degrees of comparison had been rated by the Seashore and Hevner method (2). These phrases represented two seven-point continua of comparative favorableness shown in Figure 1. Very favorable scale and "Q" values were obtained. Since the expressions received values on a seven-point continuum which closely corresponded to the seven integers spaced at equal intervals along an arbitrary continuum, the integers from one to seven were used. Thus the two continua with the numerical values of the phrases could be set up as follows:

Continuum 1

Value	Phrase
7	Very much superior
6	Much superior
5	Slightly superior
4	Equally as good
3	Slightly inferior
2	Much inferior
1	Very much inferior

Continuum 2

Value	Phrase
7	Very much more often
6	Much more often
5	Slightly more often
4	Equally as often
3	Slightly less often
2	Much less often
1	Very much less often

FIG. 1.

The instrument used in the present study consisted primarily of statements organized around the major areas of investigation listed above. To these statements subjects were asked to respond with one of the several scaled phrases of comparison. For example, in one part of the instrument given below, if one wished to indicate that he thought that the quality of merchandise of a certain priced goods was very much superior in chain

SECTION III

Directions: Below is a list of incomplete statements about chain stores which you are to grade. In each of the statements below you are to compare the particular thing mentioned for chain stores with the same thing for independent stores. Read each statement carefully and decide which phrase in the key below best completes the statement and place the number of the selected phrase in the space before that statement. For example, if you think that the Christmas trimmings in chain stores, WHEN COMPARED WITH CHRISTMAS TRIMMINGS IN INDEPENDENT STORES are equally as good, place a *4* in the space before the statement.

KEY 7. *Very much superior*
6. *Much superior*
5. *Slightly superior*
4. *Equally as good*
3. *Slightly inferior*
2. *Much inferior*
1. *Very much inferior*

EXAMPLE: 4 39a. Christmas trimmings in chain stores are:

——39. Chain stores are:
——40. The quality of merchandise of a certain price in chain stores is:
——41. The clerks in chain stores are:
——42. The friendliness of clerks in chain stores is:
——43. The care with which orders are filled in chain stores is:
——44. The policy of attempting to sell you substitute merchandise in chain stores is:
——45. The speed with which you can get waited on in chain stores is:
——46. The appeal which chain store advertising makes to me is:
——47. As a benefit to the community chain stores are:
——48. The amount of money savings made at chain stores is:
——49. Completeness of stock of merchandise of a particular kind in chain stores is:
——50. The cleanliness in chain stores is:
——51. The policy of refunds for unsatisfactory merchandise purchased in chain stores is:
——52. The policy of exchange of unsatisfactory merchandise purchased in chain stores is:
——53. The window displays in chain stores are:

FIG. 2.

stores, he would place a "7" before item 40. If one wished to indicate that he thought that clerks in chain stores were much inferior to those in independently owned stores, he would place a "2" in the blank before item 41. Thus a statistical evaluation of attitudes toward these items could be obtained.

The complete instrument contained a personal data sheet and four general sections designed to investigate the attitudes relating to chain and independently owned stores. The personal data sheet made inquiries concerning the age, the sex, the education, and the vocation of the subject and included several questions to determine if the subject owned, worked in, or had any special interest in either chain or independently owned stores.

Sections II and IV, treated elsewhere (3), dealt respectively with attitudes toward taxes for operating stores and the relative magnitude of business carried on by chain as compared with independently owned stores.

The major part of the instrument was contained in Sections I and III and we shall confine ourselves in this paper to these two features. Section I was composed of a list of the names of twenty-two chain stores. As in Section III, scaled phrases of comparison were used to determine comparative attitudes toward the various chain stores. Subjects were asked to compare each store with their idea of the average chain store. They could then record their response in terms of the continuum of inferior-superior scaled phrases given above.

Section III was designed to learn something of the general and specific attitudes relating to chain and independently owned stores. The statements in this section were carefully selected to cover what were considered to be the more important factors in determining the attitudes toward chain and independently owned stores. The directions clearly indicated that in each of the statements subjects were to compare the particular thing mentioned for chain stores with the same thing for independent stores. Item thirty-nine of this section, "Chain stores are:", was included as a sort of "cover-all" item and was

placed in the instrument to determine to what extent it alone could be used as a measure of attitude.

Two slightly different types of statements were used in this latter section. Fifteen statements from item 39 to item 53 inclusive were set up to use the continuum of comparative favorableness ranging from "very much superior" to "very much inferior." These statements will hereafter be designated as Section "IIIa." Seven statements from item 54 to item 60 inclusive were set up to use the continuum of comparative favorableness ranging from "very much more often" to "very much less often." For example, if, in item 54, "I trade at chain stores:", one wished to indicate that he traded at chain stores *much more often* than he traded at independent stores, he would place a "6" before that item. This part of Section III will hereafter be designated as Section "IIIb."

RELIABILITIES

Reliabilities were determined from the responses of 129 senior high school students and Purdue University sophomores to whom the instrument was administered twice with an intervening interval of one week. Using the Pearson Product Moment method of correlation, coefficients obtained by correlating the mean scores of corresponding sections for the two administrations ranged between $.689 \pm .031$ and $.885 \pm .013$ for Sections I, III, IIIa, and IIIb. The average "r" for these sections on the two administrations when Fisher's "z" transformation was applied was $.809 \pm .021$. Similar, although slightly higher, reliability coefficients were obtained for these sections when "odds-evens" items were correlated and interpreted by means of the Spearman-Brown formula. Coefficients obtained in this way yielded an average "r" of $.861 \pm .015$ when Fisher's "z" transformation was applied.

Individual item reliabilities, based on the same population, were obtained for the twenty-two items in Section III. For single item reliability the items are remarkably high, most of them ranging in the seventies, with all but three above .60. Four of the items had reliabilities above .80.

It is evident that the reliabilities are ample for group measurements of the sort involved in this study. Moreover, the standard deviations of the sample population were, in general, considerably higher than those upon which the reliabilities were obtained. This would tend to produce even higher reliabilities than those indicated.

An item analysis showed high discriminative values for all except two items.

SAMPLE POPULATION

A random sample was selected from the residents of Indiana living in 13 counties covering an area roughly 40 miles wide and extending from Lafayette, Indiana, in a diagonal toward

TABLE 1

Attitude Toward Specific Chain Stores

Store	N	M_x	σ_x	σM_x
Store No. 1	741	5.55	1.22	.044
Store No. 2	1042	4.90	1.09	.034
Store No. 3	562	4.58	1.08	.045
Store No. 4	1149	4.39	1.16	.034
Store No. 5	1093	4.37	1.33	.040
Store No. 6	1085	4.37	1.34	.041
Store No. 7	1126	4.35	1.08	.032
Store No. 8	811	4.30	1.17	.041
Store No. 9	1065	4.27	1.02	.031
Store No. 10	801	4.27	.95	.033
Store No. 11	711	4.26	1.27	.047
Store No. 12	1026	4.23	.98	.031
Store No. 13	940	4.19	1.17	.038
Store No. 14	1087	4.17	1.00	.030
Store No. 15	706	4.13	1.17	.044
Store No. 16	585	4.01	.92	.037
Store No. 17	671	4.01	1.15	.044
Store No. 18	361	3.74	1.06	.060
Store No. 19	726	3.71	.92	.034
Store No. 20	280	3.60	.92	.054
Store No. 21	303	3.50	.99	.056
Store No. 22	497	3.49	1.00	.045

the state line at a point opposite Cincinnati, Ohio. Approximately 1200 usable responses were obtained by 4 different methods, about 300 being obtained from each method. The interview and three mailing techniques, the results of which have been reported elsewhere, were compared (3).

ATTITUDE TOWARD SPECIFIC CHAIN STORES

Attitude toward specific chain stores as indicated by mean values of the responses to each of the twenty-two stores in Section I is shown in Table 1. The standard error of the mean and the number of responses are also given for each store. All except five of these stores show mean values above the indifference point (4.00), indicating favorable attitudes. It is of interest to note that the most favored and the least favored stores were both shoe stores.

Since the subjects responded only to those stores with which they were familiar, some indication of the familiarity with these stores could be obtained by arranging the list of stores according to frequency of responses. From this it would seem that store number 4 and store number 7 are the stores best known by the people represented in this study. Store number 20 and store number 21 are not so well known.

A rank difference correlation between the frequency of response to these stores and the favorableness of attitudes yielded a coefficient equivalent to a Pearson "r" in the order of .67. Apparently either the better known stores are better liked or the better liked stores are better known.

A number of statistically significant differences appeared when the attitudes toward various chain stores were analyzed. Some stores were favored more by men while others were favored more by women. People with only grade school or high school education favored some stores more than did those with college training.

All differences pertaining to the 5¢ and 10¢ stores are negligible. Apparently, a ten-cent store is a ten-cent store to all people alike.

ATTITUDE TOWARD VARIOUS ASPECTS OF CHAIN STORES

The mean responses to each of the items in Section IIIa were obtained. These are given in Table 2, arranged according to

TABLE 2

General Attitude Toward Various Aspects of Chain Stores
Section III (a)

		N	M_x	σ_x	σM_x
49	Completeness of Stock	1225	4.93	1.26	.036
48	Money Savings	1216	4.90	1.27	.037
53	Window Displays	1229	4.62	1.29	.037
50	Cleanliness	1233	4.49	1.14	.033
46	Appeal of Advertising	1222	4.25	1.43	.041
43	Care in Filling Orders	1129	4.20	.88	.026
41	Clerks	1230	4.20	1.03	.029
42	Friendliness of Clerks	1238	4.16	1.14	.029
39	Chain Stores	1105	4.12	1.77	.053
45	Speed of Being Waited On	1237	4.01	1.41	.040
52	Policy of Exchange	1207	3.92	1.21	.035
40	Quality of Merchandise	1218	3.90	.98	.028
44	Attempt to Sell Substitute	1167	3.85	1.48	.043
51	Policy of Refunds	1201	3.83	1.31	.044
47	Benefit to Community	1224	3.54	1.78	.051

the degree with which each item was favored. Two-thirds of the items show a favorable response. Item 39 which requires an unqualified response to chain and independent stores seems to indicate that chain stores are probably slightly favored, although the mean is near the indifference point.

GENERAL COMPARISON OF CHAIN AND INDEPENDENT STORES

A detailed analysis of item 39, which was included to make a general comparison of chain and independent stores, was made. Since it gives with less detail somewhat the same picture as obtained from the whole instrument, we shall include here only the results of this single item. This statement, "chain stores (when compared with independent stores) are:", yielded a reliability of $.77 \pm .06$.

No significant differences were perceptible when the two sexes were compared, although the men showed a higher mean than the women. The critical ratio of this difference was 1.76.

Three age groups were set up for comparative purposes: below 30, 30–49, and above 50. While no significant differences appeared on the basis of age alone, the data seemed to suggest that the younger individuals favor the chain stores. When education was taken into consideration those with only high school or grade school education seemed to favor chain stores more than did the college group, although, again, none of the differences were statistically significant. When age and education were considered together, significant differences did appear. In the age group above 50, the college group favored the chain stores significantly less than did either the high school or grade school groups.

Mean responses for seven types of vocations were also obtained for this same item and ranked according to the favorableness expressed for chain stores. They ranked from the largest mean to the smallest mean as follows: day laborer, skilled workman, salesman, farmer, professional workman, other vocations, and owner of business. All except the last two mentioned showed values more favorable to chain stores, although the differences between their mean responses were not significant. Business owners, as might be expected, indicated more favorable attitudes toward independent stores. The differences were statistically significant when compared with day laborer, skilled workman, salesman, and farmer. The differences between the mean responses of those classified in the category "other vocations" when compared with day laborers or skilled workmen were also statistically significant.

SUMMARY

Using an instrument of scaled phrases designed to measure attitude toward retail stores, approximately 1200 responses were obtained from residents of 13 counties in Indiana. An analysis of the data indicated that the people favored chain

stores slightly, especially such factors pertaining to chain stores as completeness of stock, and money savings. Some stores were more favored by women, while others were more favored by men. In general, those who were younger and less educated showed a greater favorableness toward chain stores.

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THE GENERIC USE OF TRADE NAMES

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WITH trade-names currently valued in terms of millions of dollars, there is small cause for wonder in the discovery that certain trade-names are used in ways other than those intended by the owners of the copyright. The most common abuse is that involved in deliberate imitation of successful trade-names. In China, according to Carl Crow,[1] this practice is carried to its logical conclusion: any local merchant feels free to reproduce directly any trade-name that is associated with good sales. "Caveat emptor" is the rule of the day in certain Oriental markets and the purchaser of an internationally advertised article buys there with the realization that he may be obtaining only a gross substitute, regardless of label or trade-name.

In the United States direct piracy of this sort is rare indeed but there is no lack of more subtle ways of profiting from the previous exploitation of a popular trade-name. The law deals sternly with those who baldly reproduce copyright trade-names and apply them to competing commodities. The same law is myopic, however, if not indeed blind, in dealing with those who approximate—but do not copy—registered trade-names. The result is a matter of common knowledge. Let a drink named *Tiptop* acquire great popularity and within a brief time the market will be flooded with drinks in bottles of strikingly similar shape labelled *"Tippytop," or "Tiptap," or "Peaktop."* Not uncommonly the original company will find these newcomers absorbing an unhealthy proportion of total sales and it may turn to the courts for redress. When it does so, the

[1] Crow, Carl, *Four Hundred Million Customers*, Harper, 1937.

final decision rests upon the opinion of the judge—an opinion which, however profound, is not based in any way upon psychological research. The story of the unwillingness of the courts to admit in evidence any of the familiar psychological studies of degree of confusion between trade-names has frequently been told[2] and need not be repeated here.

Another psychological problem concerned with the use of trade-names appears to have escaped the attention of psychologists in general, even though its existence is widely recognized among advertisers. It is a commonplace that a trade name, especially if it appears during a pioneering period, may be accepted and used by the public as a generic name for a whole class of articles. Thus *Gramophone* was at one time widely employed as a generic name for all phonographs and *Kodak* was made to serve internationally for all cameras. The response of business organizations is by no means uniform.[3] Some companies encourage generic use, feeling that the free advertising obtained more than compensates for the disadvantages involved. Others, dreading the effects of having shoddy substitutes accepted as the branded article, wage continuous warfare against the practice. "If it isn't an Eastman, it isn't a Kodak" is an example of a slogan directed against generic use. Some companies have gone so far as to secure a dictionary definition which restricts the use of the trade-name to the products of the company owning the copyright.

Since there appeared to be no reason why the problem should be dismissed with *a priori* generalizations and references to selected examples, the writer sought to determine whether one could obtain some measure of the extent to which any given trade-name had acquired a generic connotation. Informal public discussion of these original results brought about an

[2] See Burtt, H. E., "Measurement of Confusion between Similar Trade Names," *Illinois Law Review*, 19, 1925. The general history of the problem, of course, is given in: Paynter, R. H., "Psychological Study of Trade-mark Infringement," *Arch. Psychol.*, No. 42, 1920.

[3] Anon., "How Famous Trade-Marks are Protected Against Generic Use," *Printer's Ink*, 1927, 140, 121–137.

inquiry from a business organization which was faced with a particularly difficult case of generic use of a registered trade name. Reference will be made later in this article to the results of this specific study. The major point, however, is to suggest that a technique is available for obtaining direct indications of the extent to which a given trade name is popularly accepted as referring to a whole class of articles.

Results to date have been obtained with two acceptably large groups of students at two universities which are separated from each other by several hundred miles. The two groups were used in the hope of obtaining some cross-validation of the basic method. Students were employed as subjects simply because of their availability. The results should be checked with a sample of the general population.

The method used was to present to groups of students a list of names, some of which were generic names and some, trade-names. As will be seen from the instructions, a special effort was made to insure that the respondents were aware of the difference between the two classes of names. To make group applications possible, the names and the instructions were printed on mimeographed sheets which were then distributed to the students.

At the top of each sheet the following instructions were printed:

> Some of the names listed below are copyrighted *trade-names;* that is, they are names applicable only to commodities manufactured by certain companies. They are not properly applicable to a whole class of commodities.
>
> Other names in the list are *generic names;* that is, they describe a whole class of objects.
>
> By way of illustration:
>
> Listerine is a *trade-name.*
>
> Mouth wash is a *generic name.*
>
> Now will you indicate for each of the following names whether, in your opinion, each particular name is a trade name or a generic name. Work rapidly, using the following symbols:
>
> If trade name, "T."
>
> If generic name, "G."
>
> If you do not know the name, "DK."

The sheet contained 25 names, including such truly generic names as calendar, altimeter, humidifier, chromium plate and incinerator. Mixed in chance order with these generic names were registered trade-names, some of which appeared to the writer to be commonly employed as generic names.

As soon as the sheets were in the hands of the respondents, the experimenter called attention to the instructions and then read them aloud. Time was allowed for the few questions that arose and then the students were asked to begin marking the sheets in accordance with the instructions. Since the experimenter had been for some time the regular instructor of the classes employed, good cooperation was obtained. The students took the task seriously and respected the request not to engage in any discussion of the responses while the sheets were still before them. Table 1 shows the results that were obtained with 118 students at Cornell University and with 114 students at the University of Maryland. All of these respondents were ignorant of the systematic setting of the problem.

A glance at the table reveals surprising agreement between the two geographically separated groups. The data also offer internal evidence that the task laid before the students was comprehended and properly executed. More important, the data indicate fairly sharp differences between the extents to which trade-names are accepted as generic. The classical examples to be found in textbooks do not appear to hold good with the population studied in this investigation: *Kodak* and *Frigidaire,* for example, are correctly labeled as trade-names. On the other hand, more than two-thirds of the respondents incorrectly named *Dictaphone, Mimeograph,* and *Thermos Bottle* as generic names. *Knee-action* fared almost as badly. Approximately a chance relationship was found to exist in the case of *Caterpillar Tractor* and *Victrola.*

A legal counsellor[4] who became interested in a preliminary report of this investigation insisted that the terminology was

[4] Mr. E. S. Rogers of Rogers, Woodson and Rogers of Chicago should receive credit for suggesting the revision described above.

TABLE 1

Showing in Percentage the Response of 118 Cornell Students (C.U.) and 114 Maryland Students (M.U.)

Word	*Trade-name* C.U.	M.U.	*Generic name* C.U.	M.U.	*Don't know* C.U.	M.U.
Calendar	4	8	90	77	6	15
Citronella	48	60	43	36	9	4
Caterpillar Tractor	46	53	49	42	5	5
Eskimo Pie	77	92	23	8		
Altimeter	3	4	81	80	16	16
Lysol	94	98	5	2	1	
Viosterol	36	68	22	11	42	21
Radiola	92	74	7	9	1	17
Frigidaire	86	91	14	6		3
Dictaphone	29	27	69	72	2	1
Jello	79	89	20	11	1	
Humidifier	6	3	91	83	3	14
Victrola	51	63	48	37	1	
Iron Fireman	73	73	7	7	20	20
Sousaphone	19	30	51	37	30	33
Pyrex Glass	76	75	24	24		1
Mimeograph	31	26	68	72	1	2
Thermos Bottle	23	23	77	74		3
Knee-action	38	37	60	58	2	5
Safety Glass	14	19	86	80		1
Telechron	62	49	7	10	31	41
Kodak	91	82	9	18		
Mazda Lamp	92	96	8	3		1
Chromium Plate	7	6	92	85	1	9
Incinerator	3	3	95	91	2	6

too academic to use with the general population. At his request the writer employed the same general technique but with simplified wording in the directions. Sheets were distributed to 100 students at the University of Maryland, bearing at the top the following instructions:

> The following list is composed of two kinds of names;
> (1) Some of them describe a product and do not indicate any particular maker.
> (2) Some of them indicate a brand or the product of

a particular maker. For example, *mouth wash* describes a product; *Listerine* indicates a particular brand or make of product. *Toothpaste* describes a product; *Ipana* is a brand of toothpaste.
Write the letter *D* against the names you are accustomed to use as descriptions. Write the letter *B* against the names you are accustomed to use as brands, *i.e.*, the names indicating a particular maker's goods. Write *DK* against names unknown to you.

It will be observed that there are two apparent advantages to this revised set of instructions. First, the terminology employed is simpler and less academic. Secondly, the respondent is asked to indicate his *usage* of the terms, rather than his *opinion* of their status. In the light of studies in related fields, this second change is in the direction of sounder methodology.

It is unnecessary to reproduce the second set of results in detail. Common elements carried over from the earlier study serve further to suggest the stability of the method. *Mimeograph,* for example, is still identified as generic by more than two-thirds of the respondents. *Pepsodent,* on the other hand is labelled as a trade name by 100 per cent of the group. *Rayon* is added to the list of trade-names which are accepted as generic by more than two-thirds of the group.

Obviously the method must be tried out with a representative sampling of the general population before it can be regarded as adequately tested. It is planned to do this and to report the results at a later date. In the meantime the data reported herewith may be enough to suggest that there are striking differences in the degree to which the public accepts trade-names as generic and that the determination of these differences need not be left to solution by arm-chair methods. It should be noted also that the investigation raises a challenge to some researcher to devise methods for the discovery of the conditions which tend to make any trade-name become a generic name in the eyes of the public.

EVALUATION OF GUIDANCE THROUGH THE ELEMENTARY PSYCHOLOGY CLASS

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WHAT evaluation do students make of the guidance received from a course in elementary psychology that has as its objective to improve the personal adjustment of the student through a better understanding of human behavior and through the application of psychological test scores to one's adjustment problems?

The course in which the guidance reported in this study was given presented 3 units of study: (Unit I) an introduction to psychology, (Unit II) the nature, use, and limitations of psychological tests, (Unit III) the psychology of (a) intelligence, (b) learning, (c) motivation and emotionality, and (d) personality. This subject matter was intended to develop an understanding of behavior, to give the student a basis for a reasonably valid interpretation of intelligence, study habits, emotionality and personality test scores, and likewise to give a basis for the application of these measures to his problems of adjustment.

In conjunction with the teaching of the subject matter of Unit III a battery of psychological tests was used. The eight tests and the measures obtained were as follows:

Tests Given	*Measures Obtained*
1. American Council on Education Psychological Examination	Quantitative Scholastic Ability
	Linguistic Scholastic Ability
	General Scholastic Ability
2. Cooperative English Test	English Usage
	Spelling
	Vocabulary
	Total English

3. Iowa Silent Reading Test	Reading Rate
	Reading Comprehension
4. Otis Self-administering Test of Mental Ability	Mental Ability
5. Study Habits Inventory—Wrenn	Study Efficiency
6. Willoughby E. M. Scale	Emotional Maturity
7. Bernreuter Personality Inventory	Neurotic Tendency
	Self-sufficiency
	Introversion-Extroversion
	Dominance-Submission
	Self-confidence
	Sociability
8. Bell Adjustment Inventory	Home Adjustment
	Health Adjustment
	Social Adjustment
	Emotional Adjustment
	Total Adjustment

The first three tests were not part of the classroom testing program but rather were given as part of the Freshman Week Program, which for most students preceded the classroom testing by one year.

The order of procedure was as follows: (1) administering of test, (2) assignment and class work on relevant subject matter, (3) informing student of his test scores using a sealed envelope to each student, (4) counseling the group on the general significance of scores within each of several levels of the trait, (5) individual counseling with those who sought it.

Some elaboration of the above procedure is necessary. The emphasis of instruction was upon the practical applications of the principles of psychology to the students' personal experiences. General rather than specific guidance was given both in the presentation of the subject matter and in the application of test scores to the students' adjustments. The student was encouraged to use test results as an aid to self-analysis, and to follow this with the application of psychological principles that should lead to more intelligent self-direction and improved adjustment. Any student perplexed by his scores, or for any reason desirous of individual guidance was urged to arrange a conference with the instructor.

To make all measures comparable and as an aid to interpretation, each raw score was changed to a percentile score. Previous testing made available 300 or more scores on each test for determining the percentile values. The distribution of percentile scores was, in the case of most tests, broken down into five levels of the trait:

1– 20—low
21– 40—below average
41– 60—average
61– 80—above average
81–100—high

Scores were determined so that a favorable amount of the trait in question was represented by a high score. Exceptions to this classification were with the six scores on the Bernreuter test and the five scores on the Bell test. The interpretation of these scores was made according to that prescribed in the respective manuals.

At the conclusion of the course, when the testing, instruction and guidance had been completed, each student was given a written summary of tests taken, traits measured, and scores obtained. Students were cautioned as they had been at repeated times throughout the course, that there is no magic in a test score. They were told that decisions should not be made on the basis of test scores alone, but that scores might be helpful when considered along with other aids to self-understanding; and together with a careful analysis of environmental factors.

The following questionnaire was then used to secure the student's evaluation of the testing and guidance procedure.

A. Did the tests affect your understanding of self?
B. Has the Study Habits Inventory affected your studying?
C. Have your scholarship aims been changed?
D. Has your self-regard been changed?
E. Do you anticipate any difference in scholarship achievement due to knowledge of scores?
F. What is the significance of the testing upon your emotionality?

G. Do you anticipate any general changes in personality to result from knowing your scores?
H. Do you anticipate any specific changes in personality?
I. Will any changes in your social adjustments likely result?
J. Has your confidence in yourself been affected?
K. Is the knowledge of your reading rate and comprehension of significance to you?
L. Is the knowledge of your English ability of significance to you?
M. Are your scores likely to mean anything to you in your vocational choice?
N. Taken as a whole, the value of knowing my scores on these psychological tests is now judged to be .....

Opposite each question was a seven point rating scale:

Exceedingly Detrimental	Very Detrimental	Detrimental	No Value or Change	Beneficial	Very Beneficial	Exceedingly Beneficial
−3	−2	−1	0	+1	+2	+3

The instructions were:

In this course you have taken a number of psychological tests, and you have been informed of your scores. Indicate the value to you of this procedure by filling in the following form. Let "0" indicate no value or change; the plus quantities, varying degrees of positive value or change; the negative quantities, varying degrees of change of an undesirable sort. Mark with an "X."

Below the questionnaire a space was provided for comments. The student signed his name. To control somewhat any tendency on the part of the student to gain some personal end through a favorable response, he submitted his evaluations in a sealed envelope with the understanding that it would not be opened until his grade in the course was reported. One hundred thirty-five students, most of whom were sophomores, participated in the program. They were divided into three sections of elementary psychology instructed by the writer.

RESULTS

One hundred thirty-five students made 14 evaluations each, or a total for the group of 1890 judgments. The general distribution of these evaluations is presented in Table 1.

TABLE 1

Detrimental		No value		Beneficial	
No.	Per cent	No.	Per cent	No.	Per cent
115	6.1	754	39.9	1021	54.0

It is significant to note that the guidance procedure of the course was judged beneficial in 54 per cent of all the possibilities, and of detrimental effect in only 6.1 per cent of them. In 39.9 per cent of the instances there were no recognized values accruing from the testing and counseling procedure. Not all of the individuals in a typical group of college sophomores could be expected to be influenced in all of the respects

TABLE 2

No. of attributes out of 14 checked positively	No. of individuals checking each No. of attributes	Total of positive responses
0	8	0
1	0	0
2	2	4
3	7	21
4	7	28
5	9	45
6	14	84
7	14	98
8	16	128
9	18	162
10	13	130
11	12	132
12	7	84
13	3	39
14	5	70
	135	1021

included in this questionnaire. For example, a student whose study habits are highly efficient would not change them when an inventory revealed to him what he already knew, namely, that he had the study habits characteristic of those who attain high scholarship.

Some students were benefited in only two or three respects while others were helped in more ways. One hundred twenty-seven individuals (94.1 per cent) were benefited in from two to fourteen of the attributes. Five students checked all 14 items positively. Eight individuals indicated that they observed no value or change in any of the 14 attributes. Table 2 gives the number of individuals benefiting in from zero to fourteen attributes.

Table 3 shows the number of individuals who found the procedure of the course detrimental. Fifty-two students (38.5 per cent) checked from 1 to 7 of the attributes negatively.

TABLE 3

No. attributes out of 14 checked negatively	No. individuals checking each No. of attributes	Total of negative responses
1	22	22
2	14	28
3	8	24
4	3	12
5	2	10
6	2	12
7	1	7
8–14	0	0
Total	52	115

In comparing the beneficial and detrimental effects of this program (Tables 2 and 3) the following observations are made:

a. The ratio of number of individuals benefited to number of individuals negatively affected is 127 to 52.

b. The benefits were more extensive than the undesirable results. Seventy-four students were benefited in 8 or more

respects, while none observed detrimental effects in more than seven attributes.

A summary of the students' evaluations by items of the questionnaire is presented in Table 4.

TABLE 4

Item	Detrimental		No value		Beneficial	
	Number replies	% Detrimental	No.	%	No.	% Beneficial
A	4	3.0	24	17.8	107	79.2
B	1	0.7	51	37.8	83	61.5
C	3	2.0	83	61.5	49	36.3
D	22	16.3	53	39.3	60	44.4
E	6	4.5	78	57.8	51	37.7
F	25	18.5	51	37.8	59	43.7
G	2	1.4	55	40.7	78	57.8
H	3	2.2	64	47.4	68	50.3
I	2	1.5	64	47.4	69	51.1
J	26	19.2	50	37.0	59	43.7
K	5	3.7	39	28.9	91	67.3
L	10	7.4	48	35.6	77	57.0
M	2	1.4	72	53.3	61	45.2
N	4	3.0	22	16.3	109	80.8
Total	115	6.1	754	39.9	1021	54.0

The composite effect of knowing the scores on this battery of tests (Item N) is judged beneficial by 80.8 per cent of the subjects. Improved self-understanding which is an essential to more intelligent self-direction is indicated in 79.2 per cent of the cases. The reading and the English aptitude test scores were beneficial to a rather high percentage of the students; 67.3 and 57.0 per cent respectively. Sixty-one and one-half per cent of the students anticipated favorable changes in personality as indicated by the percentages 57.8 and 50.3 for items G and H respectively. The smallest gains were judged to accrue in scholarship aim (36.3 per cent) and scholarship achievement (37.7 per cent).

The negative effects of the guidance procedure were judged greatest in respect to the three traits, self-regard, (Item D),

emotionality, (Item F) and self-confidence, (Item J). A detrimental change was experienced in self-regard by 16.3 per cent of the students; in emotionality by 18.5 per cent, and in self-confidence by 19.2 per cent. These negative influences are not to be ignored, but rather it is suggested that more adequate counseling should be given wherein these traits are involved. It is also to be observed that approximately twice as many students adjudged themselves benefited in these 3 traits as who found the effects negative. A beneficial change was experienced in self-regard by 44.4 per cent of the students; in emotionality by 43.7 per cent, and in self-confidence by 43.7 per cent.

The validity of self-estimates such as are reported in this study is open to question. For this reason, little interpretation is put upon the seven-point rating scale. Students are not likely to evaluate the degrees of beneficial or detrimental effects with accuracy. The procedure was followed mainly as a technique to secure more careful judgments on the part of the student than might be secured if only the three categories of "detrimental," "no value" and "beneficial" were used. The seven-point ratings are not of much value when summarized. They were found of considerable value in several individual cases, where the test results, class exercises, and evaluations led to a rather thorough case study followed by a succession of counseling periods with the student.

The extreme ratings on the negative side were few. Only three-tenths of one per cent of the total judgments were in the category extremely detrimental (−3), and only eight-tenths of one per cent were in the category very detrimental (−2). Most of these ratings were in respect to self-regard, emotionality, and self-confidence. There were 5 students who had a negative average on the 14 attributes. The largest negative average was −.43. This particular student had low scores on the tests of mental ability and scores indicating emotional instability on the Bernreuter and Bell tests. His adjustment to the college environment was very poor, and the guidance procedure of the course seemed not to help him. His

withdrawal from college was a step in the direction of adjustment.

There was a considerable number of extreme ratings on the positive side. Three and four-tenths per cent of the judgments were in the category extremely beneficial (+3), and eleven per cent were in the very beneficial (+2) class. The study habits inventory and the reading rate and comprehension scores were judged most frequently to be exceedingly beneficial. The highest average rating on the 14 attributes for any one student was +2.33. A knowledge of the student with this rating and of his improved adjustment following the course, substantiates the student's judgment that the guidance procedures greatly benefited him.

The real values of any guidance program can be appraised better when cases are considered individually, than when averages are determined for a group. Effective guidance necessitates counseling over an extended period of time in the light of what is known about the individual and in the knowledge of what his successive acts of adjustment or maladjustment are. Evaluation of guidance on the basis of case studies which include a follow-up record of the individual is the most enlightening. In the present study, follow-up conferences with the individual student were more convincing of the values of guidance through the elementary psychology class than are the data summarized above.

The elementary psychology class affords a favorable opportunity for group guidance. Students interested in problems of human behavior are ready to throw the spotlight of psychological tests upon themselves. Psychological tests bring to the attention of the instructor problems of the student which otherwise might not be observed. They serve as an objective approach to the student when he is in need of counseling. They aid the student in a helpful self-analysis when they are cautiously interpreted. Supported by the principles of psychology as taught in the elementary psychology course and by counseling, they help many students to a better self-understanding and to improved personal adjustment.

PRIMARY MENTAL ABILITIES AND SCHOLASTIC ACHIEVEMENTS IN THE DIVISIONAL STUDIES AT THE UNIVERSITY OF CHICAGO

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SINCE the first appearance of the tests for Primary Mental Abilities, prepared by Professor L. L. Thurstone, it became apparent that they present definite advantages hitherto inaccessible yet highly important to the people and the institutions confronted with the problems of educational and vocational prediction and guidance. The customary procedure in separating the bright from the dull was to assign to each individual a single composite index of intelligence either in terms of a measure of mental age or an IQ or in terms of a percentile rank in general intelligence. This has resulted in a great deal of misjudgment and hence an unnecessary waste of human abilities. For it is quite possible that an individual may be very low in his single composite index of intelligence and still be of average rating or reasonably above in respect to one or more of his primary mental abilities. Hence he can be guided along the line of best fit.

Again it is a problem of very great interest to see how the average profile of the primary mental abilities of, say, the students in the social sciences differs from that of those in the biological sciences or in the physical sciences, what these profiles look like, and what particular combination of abilities is required for success in a particular career, whether it be in the physical, the biological, or the social sciences. Determination of sex differences in these divisional studies is another problem of importance in correctly advising students as to their divisional majors.

Table 1 shows a summary of information about each of the seven primary abilities, taken from Thurstone (8).

In November, 1939, and in February, May, and November, 1940, the Experimental Edition of the Tests for the Primary

TABLE 1

Tests For Primary Mental Abilities—Experimental Edition (Thurstone)

Symbol	Factor	Tests	Maximum possible score	Estimated reliability (split-half)	Estimated validity
P	Perception	Identical forms	118	.99	.65
		Verbal enumeration	119		
N	Number	Addition	240	.99	.63
		Multiplication	150		
V	Verbal	Completion	72	.96	.68
		Same-opposite	100		
S	Space	Cards	115	.99	.71
		Figures	117		
M	Memory	Initials	25	.93	.68
		Word-number	20		
I	Induction	Letter grouping	30	.87	.51
		Marks	20		
		Number patterns	30		
D	Reasoning	Arithmetic	40	.84	.58
		Mechanical movements	44		
		Number series	60		

Mental Abilities was given to 110 students, juniors in the college, by Professor Dael L. Wolfle.[1] Each student took the tests in three sessions of less than two hours each. The norms used for this present investigation were originally worked out on a group of three hundred high school seniors at the Hyde Park High School in Chicago.

I. MEAN PROFILES

Table 2 presents the mean profiles of the total group and the various sub-groups considered. The last two columns are

[1] The writer very gratefully acknowledges his thanks to Professor Wolfle for the generous permission to use the data.

TABLE 2
Mean Profiles

Group	No. of cases	P	N	V	S	M	I	D	'T'	G
Total group	110	1.016	.719	1.742	.894	.691	.510	1.182	6.754	2.482
Men	63	.810	.725	1.633	.979	.567	.429	1.413	6.556	2.467
Women	47	1.294	.711	1.887	.779	.857	.619	.872	7.019	2.502
Biological (men & women)	32	.934	.566	1.575	1.000	.656	.391	1.197	6.319	2.353
Social (men & women)	45	1.087	.887	1.893	.656	.798	.362	1.051	6.733	2.633
Physical (men)	17	.865	.712	1.553	1.459	.665	.947	1.818	8.018	2.397
Biological (men)	19	.753	.616	1.563	1.021	.589	.321	1.447	6.311	2.370
Social (men)	24	.817	.850	1.779	.617	.538	.171	1.113	5.883	2.588
Biological (women)	13	1.200	.492	1.592	.969	.754	.492	.831	6.331	2.328
Social (women)	21	1.395	.929	2.024	.700	1.095	.581	.981	7.705	2.686

the mean from the total composite scores under 'T' and the mean from the sum of the averaged grades under G for each group.

The mean profile of the college juniors has the highest rating on the verbal factor. All ten groups considered, the verbal factor has consistently the highest rating with the deductive reasoning factor second in the mean profile except in the case of the physical science group where the order is reversed.

Sex Differences

The mean profile for men has the highest rating on factors V and D while the mean profile for women has the highest rating on factors V and P. This tendency is consistent throughout all the sub-groups considered.

In Table 3 the critical ratios derived from the comparison of means of men and women in the three different groups, with respect to various abilities, are presented. In the total group, the men are significantly higher than the women in

TABLE 3

Sex Differences in Mean Profiles (in Terms of t-values)

Comparison of men & women	Degrees of freedom	P	N	V	S	M	I	D	'T'	G
Total group	108	−2.75	.08	−1.69	1.04	−1.27	−.91	3.81	−.58	−.27
Biological	30	−1.40	.48	−.11	.13	−.40	−.40	2.21	−.01	.19
Social	43	−2.21	−.29	−1.03	−.28	−1.68	−1.30	.66	−1.60	−.46

deductive reasoning while the women are significantly higher in perceptual ability. In the last two columns of Table 3, both sexes are just about matched. In no case is the difference significant, in spite of the fact that we found significant differences in some of the primary abilities.

Divisional Differences

Each divisional group mean is compared with every other comparable group mean in respect to each of the seven primaries, the total score, and the averaged grade points. These results are presented in Table 4. According to the critical ratios, there apparently exists no significant difference between the biological and social science groups, either men and women combined, or separate. However, some of the critical ratios are considerably large enough to warrant further investigation. The mean profile of the physical science group is significantly different from that of the biological science or the social science groups. Physical science men seem to be significantly different from biological science men in induction. The critical ratio is valid at the three per cent level of significance. When the physical science and social science groups are compared, the differences in respect to deduction, space, and induction are definitely significant. In all these comparisons, there exists no significant difference in terms of total scores.

It is highly significant to note that we have discovered both sex differences and differences in the divisional studies on

some of the primary mental abilities where there is no statistically significant difference in terms of total scores, that is, in terms of a single composite index of general intelligence. This is clear evidence against the use of a single composite index. A number of individuals often have exactly the same scores in terms of the total scores, but their factorial combinations of abilities differ considerably.

II. RELATION BETWEEN THE TEST SCORES ON THE PRIMARY MENTAL ABILITIES AND THE AVERAGED GRADE POINTS

Intercorrelations among the seven primary abilities and intercorrelations within each ability have been calculated. They are presented in Table 5. A clean-cut test for the degree

TABLE 4

Divisional Differences in Mean Profiles (in Terms of t-values)

Comparison of divisions	Degrees of freedom	P	N	V	S	M	I	D	'T'	G
Biol. & Soc. (M & W)	75	−.73	−1.66	−1.80	−1.44	−.54	.11	.86	−.45	−1.81
Phys. & Biol. (Men)	34	.34	.35	−.03	1.32	.18	2.17	1.54	1.26	.12
Phys. & Soc. (Men)	39	.15	−.48	−.82	2.81	.33	2.55	3.56	1.70	−.86
Biol. & Soc. (Men)	41	−.23	−1.07	−.89	1.27	.14	.47	1.42	.37	−1.04
Biol. & Soc. (Women)	32	−.65	−1.26	−1.66	.72	−.89	−.21	−.66	−.91	−1.52

of independence of the seven primaries would be a complete analysis of a sixteen by sixteen correlation table, by a factor method. However, a mere inspection of Table 5 shows that slightly over half of the correlations above the diagonal are less than .24, while only one correlation in the diagonal is less than .31. Another evidence is the fact of relationship existing between the primary abilities and the averaged grade points that are presented in Table 6. These are the rough

TABLE 5

Intercorrelations among the Seven Primary Abilities and Intercorrelations within Each Ability (Product Moment)

	P_1	P_2	N_1	N_2	V_1	V_2	S_1	S_2	M_1	M_2	I_1	I_2	I_3	D_1	D_2	D_3
P_1	.477		.144		.470		.224		.183		.212			.092		
P_2																
		N_1		.683	.239		.136		.168		.176			.312		
		N_2														
			V_1		.573		.220		.437		.347			.215		
			V_2													
					S_1		.737		.312		.373			.489		
					S_2											
							M_1		.548		.323			.244		
							M_2									
									I_1		.468		.353			
									I_2				.393	.559		
									I_3							
													D_1	.475	.310	
													D_2		.148	
													D_3			

TABLE 6

Product Moment Correlations between the Composite Scores on the Primary Mental Abilites and the Averaged Grade Points

Group	No. of cases	P	N	V	S	M	I	D	'T'
Total group	110	.178	.201	.352	.151	.232	.295	.261	.381
Men	63	.138	.054	.372	.150	.244	.268	.308	.359
Women	47	.227	.377	.328	.164	.213	.325	.259	.407
Biological (M & W)	32	.054	.115	.250	.342	.048	.184	.329	.291
Social (M & W)	45	.308	.348	.475	.216	.248	.497	.376	.583
Physical (men)	17	−.016	−.145	.157	.064	.391	.312	.403	.368
Biological (men)	19	.052	−.172	.258	.476	.073	.068	.272	.273
Social (men)	24	.356	.144	.651	.040	.278	.453	.446	.573
Biological (women)	13	.084	.478	.239	.109	−.003	.375	.519	.345
Social (women)	21	.243	.519	.269	.399	.199	.545	.316	.597

checks, but the evidences are in agreement with Thurstone's report that the primary mental abilities are independent and uncorrelated but that the tests used in the battery are not pure tests of any factor.

Table 6 shows the product moment correlation coefficients between the composite scores on the primary mental abilities and the averaged grade points for various groups. The largest correlations for the total group are between the verbal, inductive, and deductive factors and the averaged grade points. Some of these coefficients are somewhat lower than those reported by Harrell, by Shanner and Kuder, and by Bernreuter and Goodman. However, one must consider the fact that the group we are studying here is, relatively speaking, more highly selected. The range of their ability is consequently narrower. Therefore, lower correlation coefficients are to be expected. A test for significant difference has been applied to correlations of various comparable groups. Practically all the correlational differences fail to be significant even at the five per cent level, probably on account of the groups being too small. However, upon inspection of Table 6, several interesting facts are apparent. In general the verbal, inductive reasoning and deductive reasoning factors seem to correlate better with scholarship. The social science group, either men and women combined, or separate, has somewhat higher correlations between the primary abilities and scholarship. Finally the number factor seems to correlate with scholarship consistently higher in women's groups than men's. Multiple correlation coefficients between various combinations of the primary mental abilities and averaged grade points are reported in Table 7. The results seem to indicate that a combination of tests of verbal and inductive reasoning or of verbal, inductive reasoning, and deductive reasoning could be used about equally well as a combination of all seven abilities for the purpose of predicting scholarship in college. The multiple correlation coefficients found by Shanner and Kuder, and by Bernreuter and Goodman are somewhat

TABLE 7

Multiple Correlation Coefficients between Various Combinations of Primary Mental Abilities and Averaged Grade Points

Combination of primary mental abilities	Averaged grade points
V I D M N P S	.422
V I D M N P	.421
V I D M N	.421
V I D M	.414
V I D	.412
V I	.397

higher than those reported here, just as they were in the case of zero order correlation coefficients.

SUMMARY

Within the groups studied, the following conclusions may be made:

1. The mean profile of the college juniors has the highest rating in respect to the verbal and the deductive reasoning factors.

2. There exist both sex differences and differences in the divisional studies on some of the primary mental abilities, where there is no statistically significant difference in terms of total scores, that is, in terms of a single composite index of general intelligence.

3. In general, the verbal, inductive reasoning, and deductive reasoning factors seem to correlate better with scholarship. The social science group has somewhat higher correlations between primary mental abilities and scholarship. Finally, the number factor seems to correlate with scholarship consistently higher in women's groups than men's.

4. Multiple correlation coefficients between various combinations of the primary mental abilities and averaged grade points, seem to indicate that a combination of tests of verbal and inductive reasoning, or of verbal, inductive reasoning

and deductive reasoning could be used for the purpose of predicting scholarship in college, about equally well as a combination of all seven abilities.

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HIGH RANK CORRELATION BETWEEN RADIO LISTENERS AND PRODUCT–PROGRAM ASSOCIATION

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A HIGH rank correlation, .78, was found to exist between the number of women who listened to afternoon serial programs and the number who associated the product with the program.[1] Using the Unaided Recall Method, a survey was taken among 876 middle-income housewives in the Akron, Ohio area, which included the cities and towns of Akron, Barberton, Cuyahoga Falls, Stow, and Kent. Middle-income was defined in this survey as the group owning homes valued at from $3000 to $7500, or paying monthly rent of from $30 to $65. The stability test was applied to the tabulated results for a check on adequateness and representativeness. According to Brown's Tables, the Probable Error of the Sample based on two standard deviations was plus or minus three per cent. The personal interview method was chosen because by this method it was possible to reach non-telephone homes. The interviewers were trained and supervised by the writer and are students at Kent State University majoring in Market Research.

The procedure employed was to list seventeen serial programs by name, with sufficient room left to write in additional programs. The programs were selected at random from a radio time-table and no attempt was made to focus attention on any particular program. Blank spaces were provided alongside the name of the program. Respondents were asked to check those

[1] Part of this material appeared in *Printers Ink Monthly*, March 1941, under title "Afternoon Radio Listening Habits."

programs to which they listened regularly (at least twice a week) and to *write* in the name of the product advertised on that program. Where the trade-name of the sponsor was written in instead of the trade-marked article credit for recognition was given.

A rank correlation[2] of .78 was found, which is significant and is evidence that with large numbers of listeners to five-day-a-week programs, a preponderantly large percentage of women are able to associate the program with the product advertised, while, similarly, where the number of listeners is small, the association of product and program is likewise slight. The above conclusion, it should be emphasized, is meant to apply only to five-day-a-week programs and not to all types of radio programs.

An analysis of the results shows, for example, "Ma Perkins" ranked *Number One* in number in listeners, and also *Number One* in the percentage of listeners who associate correctly the product and program. The impression should not be gained that even "Oxydol's Ma Perkins" received one hundred per cent recognition. Twenty-two per cent of the women who listened to "Ma Perkins" did not know the product advertised, while another four per cent identified "Oxydol's Ma Perkins" *with some other product.* A few more examples may be quoted (complete results appear in Table 1). "Backstage Wife" ranked *Ninth* in number of listeners and *Eleventh* in percentage of recognition; while "Society Girl" ranked *seventeenth* in number of listeners and *eighteenth* in percentage of recognition.

Although "Ma Perkins" ranked first in number of listeners, not every woman listened to this program. Actually 36 per cent of the women were attracted. Which percentage, if projected over an entire state, would mean a whale of a lot of listeners.

[2] The formula used was: $\rho r = 1 - \frac{6\Sigma d^2}{n^3 - n^1}$

where d is the difference between the rankings, and n the number of serial programs.

TABLE 1

Afternoon Serial Programs—Product-Program Association (Akron Area)

Program	Per cent of all listeners	No. of listeners to program	No. able to identify correctly	Per cent	No. unable to identify	Per cent	No. wrong identification	Per cent	Rank on basis of listeners	Rank on basis of correct identification
Ma Perkins	36.19	317	233	73.5	71	22.4	13	4.1	1	1
Mary Marlin	35.19	309	191	61.8	110	35.6	8	2.6	2	4
Vic and Sade	33.33	292	204	69.9	83	28.4	5	1.7	3	2
The O'Neills	31.39	275	175	63.6	93	33.8	7	2.6	4	3
Pepper Young	28.42	249	145	58.2	94	37.8	10	4.0	5	5
Road of Life	26.94	236	102	43.2	123	52.1	11	4.7	6	10
Stella Dallas	22.74	199	94	47.2	97	48.7	8	4.1	7	7
Woman in White	20.66	181	61	33.7	99	54.7	21	11.6	8	15
Backstage Wife	19.18	168	67	39.9	91	54.1	10	6.0	9	11
Girl Alone	18.04	158	73	46.2	71	44.9	14	8.9	10	8
Grimm's Daughter	16.89	148	70	47.3	67	45.3	11	7.4	11	6
Lorenzo Jones	14.04	123	35	28.5	85	69.1	3	2.4	12	16
Widder Brown	13.93	122	26	21.3	84	68.9	12	9.8	13	17
Life Beautiful	13.13	115	45	39.1	66	57.4	4	3.5	14	12
Joyce Jordan	7.42	65	25	38.5	39	60.0	1	1.5	15	13
Dr. Malone	6.85	60	26	43.3	31	51.7	3	5.0	16	9
Society Girl	5.48	48	9	18.8	32	66.7	7	14.5	17	18
Others	4.91	46	16	37.2	24	55.8	6	7.0	18	14

Total number of listeners	876
Total number of programs mentioned	3111
Total number—correct identification	1597
Per cent	51.3
Total number—unable to identify	1360
Per cent	43.7
Total number—wrong identification	154
Per cent	5.0

Of the 3111 programs mentioned by 876 women (an average of 3.55 serial programs per woman), 1597 were identified correctly with the product advertised. This gives an overall association of sponsor and product of approximately 51 per cent. This is an unusually high percentage of recognition under the Unaided Recall Method. It compares favorably with tests made by Dr. Link of the Psychological Corporation using a similar method on magazine advertising.

What is the significance of these figures from a cost angle? Using the same three programs we find "Ma Perkins" had 317 listeners, "Backstage Wife" had 168 listeners, while "Society Girl" had only 48 listeners. "Ma Perkins" had six times as many listeners as "Society Girl," or a cost per listener of $\frac{1}{6}$, assuming all other things equal. On the same basis, "Ma Perkins" had about $\frac{1}{2}$ the cost per listener paid by the sponsors of "Backstage Wife." Of course there may be a greater initial cost for some programs than for others, but ultimately it is the cost per listener which must concern the sponsor. It must also be conceded that the length of time a program has been on the air is a determinant of the number of listeners.

NEWS AND NOTES

The Kentucky Psychological Association, following its annual meeting April 18, 1941, voted to effect a permanent organization. Dr. Milton B. Jensen, consulting psychologist, Louisville, Kentucky, was elected chairman. Miss Nancy T. Collins, research assistant in the Louisville Public Schools, was elected secretary-treasurer. The following were elected directors of the organization: Dr. L. M. Baker, Berea College; Dr. N. H. Kelley, University of Louisville; Dr. J. W. Curtis, Pikeville College, Pikeville, Kentucky.

The National Society for Crippled Children, founded in 1923, will conduct its ninth annual sale of Easter seals for crippled children from March 10 to April 5, 1942. There is no question but that much remains to be done in corrective work, education, guidance, vocational training, and job finding for the crippled, and anything that calls our individual and collective attention to these serious problems deserves commendation and support. Nation-wide interest in those who are physically handicapped and the consequent interest in preventing those handicaps has been in no small degree the outgrowth initiated by the National and state societies for crippled children. Information concerning the purchase of Easter seals may be obtained by writing to Vivian M. Hackett, Editor, *The Crippled Child*, Elyria, Ohio.

A two-day conference of the Society for the Advancement of Management was held in Hotel Commodore, New York City, on Thursday and Friday, December 4 and 5. Miss Caroline Haslett, Britain's noted woman engineer adviser to the Ministry of Labor, analyzed the problems confronting industry in the democratic countries today and examined the possibilities of a future which is now being shaped by world conflict. She gave a dramatic picture of the British woman technician at work under fire, and attempted to answer two questions uppermost in the minds of democratic peoples everywhere, namely: "Can the industrial organization of a free people with cooperative effort out-produce in time of war a totalitarian order with its complete state control of industry and coercion of labor?" and "Can it provide a higher standard of living in time of peace?"

The Washington-Baltimore Branch of the American Psychological Association held the first meeting of the year 1941–42 on October 30, 1941 at Wilson Teachers College, Washington, D. C. The program was composed of three papers given by Dr. Steuart H. Britt, George Washington University, Dr. Jerome S. Bruner, Federal Communications Commission, and Mr. Luigi Petrullo, Social Security Board. The title of the first was "Psychological Testing for District of Columbia Selective Service Local Boards." Dr. Bruner spoke on "Causes and Consequences of Short Wave Listening in an Italo-American Community." The last paper by Mr. Petrullo was entitled "Job Families."

The Salmon Committee on Psychiatry and Mental Hygiene of the New York Academy of Medicine announces the Thomas William Salmon Lectures for 1941, given by Dr. Robert Dick Gillespie, Psychiatric Specialist with the British Air Force. His subject, "Psychoneuroses in Peace and War and the Future of Human Relationships." Lectures were given during November in New York, Toronto, Chicago, New Orleans, Washington, San Francisco and Philadelphia. Dr. Gillespie, a native of Glasgow, Scotland, is the author of the standard reference work "Textbook of Psychiatry" written in collaboration with Dr. David K. Henderson. Before undertaking his wartime duties he was on the psychological medicine staff of Guys Hospital and Medical School in London.

The Eastern Association of College Deans and Advisers of Men held its thirteenth annual meeting at Haddon Hall, Atlantic City, New Jersey, November 22, 1941. The general discussion during the morning session was concerned with "Extra-Curricular Activities as Part of a College Education," with Dr. George B. Curtis, President of the Association, presiding. Professor Edwin B. Twitmyer, Chairman of the Eligibility Committee, University of Pennsylvania, spoke on "A College Point of View." "An Employer's Point of View" was discussed by Donald S. Bridgman, Personal Relations Department, American Telephone and Telegraph Company. The afternoon session consisted of a business meeting and a round table discussion of the following topics: "College Credit for Activities," "Methods for Maintaining Student Activity Records," and "Faculty Contribution to Extra-Curricular Activities."

The American Youth Commission of the American Council on Education, 744 Jackson Place, Washington, D. C., has published recently the following books: *Youth, Family and Education*, by Dr. Joseph K. Folsom, Professor of Sociology at Vassar College; *Color and Human Nature*, prepared by W. Lloyd Warner and Walter A. Adams; *Guidance for Rural*

Youth, a pamphlet prepared by M. M. Chambers; *Time on Their Hands: A Report on Leisure, Recreation, and Young People*, prepared by the American Council on Education. Those interested in securing these books and pamphlets should communicate with The American Youth Commission of the American Council on Education.

Section I (Psychology) of the American Association for the Advancement of Science will meet in Dallas, Texas on Monday, December 29, and Tuesday, December 30 as part of the general meeting of the A.A.A.S., which extends from December 29 through January 3. In addition to the usual program of contributed papers there will be on Monday, December 29, a symposium on "Recent Advances in the Appraisal of Personality" under the chairmanship of Professor Ernest R. Hilgard of Stanford University, and on Tuesday, December 30, a joint symposium with Section Q (Education) on "The Psychology of Learning and the Educative Process."

"The meetings of Section I of the A.A.A.S. offer to psychologists not only an opportunity to participate in meetings of their own, but also to become acquainted with current investigations and investigators in other sciences. The activities of Section I can do a great deal toward establishing the place of psychology among the sciences, toward cementing friendly relations with related sciences, and toward increasing the influence and usefulness of psychology. It is hoped that many among the Members and Associates of the A.P.A. who are not now members of the A.A.A.S., and through it of Section I, will join the A.A.A.S. and participate in its meetings. By so doing they will be supporting the advancement of science in general and of psychology in particular."

The Seaman Award Committee of the American Museum of Safety is announcing a country-wide essay contest in an effort to strengthen the country's accident prevention program and perhaps obtain new ideas that will help promote safety and conserve man-power for United States defense activities. The announced subject is "A Plan of Action to Combat the Rising Tide of Accidents in the Present Emergency." The written entries are limited to 2,500 words. Cash awards are to be in sums of $500, $250 and $100 for first, second and third place winners. Entries may be mailed to the American Museum of Safety, Room 733, 60 East 42nd Street, New York City any time before midnight on February 28.

BOOK REVIEWS

ROBINSON, FRANCIS P. *Diagnostic and Remedial Techniques for Effective Study.* Harper and Brothers Publishers, New York. 1941. Paper bound. 318 pages.

Broadly stated, the aim of this volume is to help the student in the class room, in the study hall, and on the campus. All of the material is organized into fifteen projects, presented under two general headings: "(A) those which deal with study skills and background information, and (B) those which deal with problems indirectly affecting success. Projects in Section A concern use of time, study habits, study conditions, reading skills, vocabulary, library skills and examination skills. Projects in Section B relate to health, motivation, vocational choice, recreational and social adjustment, and personal problems. . . . The first step in using each Project is diagnostic; that is, you use the diagnostic materials to find out the nature of your study difficulty. The second step is devoted to reading on how you may overcome the specific difficulties. . . . The third step deals with remedial practice and is, of course, the crux of the whole project."

The psychological principles involved are stated in non-technical language, the instructions are clearly stated, the tests are plainly labelled, and the keys are easy to use. A student with proper motivation should be able to use the book profitably without help. An Instructor's Manual is included.

The book may be used *in toto* or in parts pertinent to particular situations. This is the best book on the topic of improvement of study the reviewer has seen.

GOLDFARB, WILLIAM, PH.D. *An Investigation of Reaction Time in Older Adults, and its Relation to Certain Observed Mental Test Patterns.* Teachers College, Columbia University Contributions to Education, No. 831. Bureau of Publications, Teachers College, Columbia University, New York, 1941.

This research belongs in the general field of the psychology of maturity, and is concerned with problems which arise in investigating the supposed decline of abilities with age.

An immediate problem is the "development of acceptable means of evaluating the intellectual performance of adults." If "Decline in test performance with age is a function of the test used," then "The need is

indicated for a comprehensive elaboration of the problem of the varying relationship to age of scores in different tests used to measure the intellectual performance of adults.''

The major problems considered are: What is the relationship between (1) simple reaction time and age, and (2) discrimination reaction time and age? What is the relationship between the age of older adults and: (1) their scores in power tests of intelligence, (2) their scores in mixed speed and power tests of intelligence, and (3) their scores in tests which stress speed and minimize power? What is the relationship between reaction time of older adults and (1) their scores in power tests of intelligence, and (2) their scores in mixed speed and power tests of intelligence?

The experimental population was drawn from a group of clerks who were engaged in a word count study, and may not represent the general population. One hundred and eight men ranged in age from eighteen to sixty-five, and sixty women ranged in age from eighteen to fifty-five. The males were well distributed throughout the entire age range, but the women were not. ''The male data are therefore more representative, though consistency in both male and female groups strengthens the validity of the interpretations.''

Each individual received a battery of tests, ''consisting of a simple reaction time experiment, two discrimination reaction time experiments, the Wechsler-Bellevue Intelligence Test, the IER Intelligence scale CAVD, the Otis Self-Administering Test of Mental Ability (Higher Examination, Form B, 20″ time limit), ''and three locally constructed speed tests'': a simple directions test, an arithmetic additions test, and an easy same-difference test.

The mean correlation between reaction time and age is .338 for men, showing a consistent decline in speed with increasing age. The comparable a for women is .193, but perhaps is not as valid, since the majority of women fell below twenty-five years of age.

The r's between CAVD (selected to represent a power and age test) and age are −.165 for men and −.163 for women. The r's between the Otis (selected to represent undifferentiated speed and power) and age are −.393 for men and −.500 for women. And r's between Additions Test and age were −.363 for men and −.464 for women. The r's between Directions and Same-Difference tests and age were −.499 and −.500 for men, and −.513 and −.598 respectively for women.

The author concludes that power tests do not show significant decline with age; but tests which measure an undifferentiated mixture of speed and power, or tests which stress speed and minimize power show a more reliable tendency to decline with age. Since ''the same subjects show a negative correlation with age in one kind of intelligence test, *e.g.*, the

motor or mixed speed and power, and at the same time show no reliable tendency to decline with age in another kind of intelligence test, *e.g.*, the verbal and power, it is logical, therefore, to argue that the difference in age penalty is related to the kind of test that is used." The data of this investigation demonstrate that while the adult declines in ability to work fast, he tends to retain his capacity "to solve mental problems of equal difficulty to those he could solve when younger."

In regard to the relationship between reaction time and the mental tests, the author finds that CAVD correlates with simple reaction time −.13, and with discrimination time − .244. Similar relationships are shown by the Otis 20″ test. The relationships between the mental tests are higher. When the Wechsler-Bellevue test is broken down into Verbal and Performance Scales, the average r for each is .512 and .279 respectively for men, and .362 and .148 for women. Terman reported that the vocabulary test agreed most highly with the entire Stanford-Binet scale; Wechsler reported that the vocabulary part of his test agrees most highly with the whole scale, and in this study the vocabulary of the Wechsler agrees most highly with the CAVD. The subtest next in order of relationship is the Information Test. The scores on these two tests are able "to withstand the penalty of age." "That they are more affected by experience than other tests is not to be discounted."

By the Hotelling Factorial Analysis of intercorrelations of twenty-four variables in the data of the male group, the author concludes: "The evidence would seem to verify the hypothesis therefore that each individual possesses a general ability, narrower abilities which are not wide enough to be called general ability and yet are observed in more than very specific tasks, and finally, abilities limited to very specific tasks."

An obvious criticism, recognized by the author, is that the experimental groups used in this study are not representative of the general adult population. But the author has done a careful piece of research, and provides valuable data upon a timely subject.

J. R. Gentry
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Lee E. Travis and Dorothy W. Baruch. *Personal Problems of Everyday Life:* Practical Aspects of Mental Hygiene. New York: D. Appleton-Century Company, 1941.

The authors have attempted the analysis of the emotional and mental troubles which occur in the lives of everyone of us. The contention is that before facing one's problems, insight must come into what the trouble is and then one is in position to do something about it.

The book is divided into three parts. Part One deals with the importance of living, why we suffer in vain, and our worst enemy—mental blindness. The problems of emotional or mental ills grow out of events

that influence the child's personality. In the child's impatience for immediate satisfactions arise inappropriate action patterns which become crippling before self-direction is attained. Scars of maladjustments, instead of toughening the child's personality for later hardships, render it less fit for subsequent conflicts. The diet that the child needs during this development period is emotional nourishment, rich in satisfactions and self-securing. The chapter on "Behind the Scenes" tells what happens to urges in the face of cultural impacts, and this is an important discussion. Part One ends with the chapter on "How We Find Out About Ourselves." A quotation will suffice to close this part:

> "Much of our behavior is based on our drive toward the satisfaction of needs. When needs are not satisfied, we get restless and uncomfortable. We start adopting inappropriate types of activity. We do things which are destructive to ourselves and to others. The lack of satisfactions sets up tensions. Unfortunate types of behavior are caused."

Efforts to reduce these tensions may result in maladjustments.

Part Two is devoted to particular problems one meets in life situations. These problems come under the categories of both physical handicaps and habit disorders. The main emphasis is the analysis of causes of these disturbances rather than the treatment of the symptoms. Problems of childhood, adolescence and the topic of "man and woman in marriage" are treated. This section goes even further and considers marriage after children have come into the home. Problems of work and play, from a mental health viewpoint, are reviewed for the student in this section. The theme running throughout the analyses is that inward peace on the part of individuals tends to minimize outward conflicts.

Part Three of the book offers encouragement toward helping ourselves. The Golden Rule is applied in that, if we realize that we have needs, so do all other human beings, and "we can help ourselves to get along with other people considerably better if we take their needs into the picture." One of the most pointed aspects of the Golden Rule from a psychological point of view is stated as follows:

> "When we meet a person for the first time, our attitude boils down to two alternatives. We may be struggling with our own self-consciousness and the fear of what the newcomer may think of us. Or we may be thinking of making the other person comfortable. With the first reaction, we are doing nothing for ourselves. Neither are we doing anything for the other person. We can help both ourselves and others by trying to put the other person at ease."

The person who can live this truism is the one who earns his own salvation, from a personality viewpoint, as well as creating a social situation which may facilitate the other person's personality expression.

Throughout this book the reader has been impressed with the thought-

fulness of the authors in treating the simple but profound problems of human adjustment. They have revealed some answers, at least, in a dynamic, positive—yes, even hopeful way. Too long have we emphasized the negative aspects without offering a positive program of what to do when maladjustments arise. At least the person reading this book will not get the impression that "futility" is the philosophy expressed. The book is well written and full of sound information for the student.

JAMES R. PATRICK
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J. F. BROWN. *The Psychodynamics of Abnormal Behavior.* New York, McGraw-Hill Book Co. 1940. pp. 484.

In a series of papers and one previous book Dr. Brown has sought to integrate Freudian psychoanalysis with academic psychology as represented in Lewin's topological theories. While the present volume is in the same tradition Freud is in much greater evidence than Lewin. The author says, "I consider neither apology nor explanation necessary for organizing my presentation around psychoanalytic principles" and further, "psychoanalysis has grown until it represents the most completely systematized school of psychology." No reader could ask an author to apologize for the basis of his textual organization, but any psychologist could ask for proof of the second statement. I have been unable to find such vital psychological problems as attention, learning, perception, fatigue, and a host of others, anywhere systematically discussed by Freudian psychoanalysts.

Even within its limited field of "personality" or "adjustment" it is doubtful if Freudian psychoanalysis is the "most systematized school." The author says, "In order to save myself from accusations of undue bias, I have dealt with certain rival theories also." In a sense this is true: after devoting over 100 pages to the clearest exposition of Freudian theory yet presented by a psychologist Brown allows barely 15 pages to Adler (4 p.) Jung (1.5 p.), other psychoanalytic groups (1 p.), characterology (6 p.), sociological approach (1 p.) and endocrinological and biochemical approach (1.5 p.). Nothing at all is said of the system of Adolph Meyer in psychiatry or the much more extensively systematic psychology of Kantor. The author can hardly avoid the accusation of bias.

However, if one recognizes and accepts the author's very real bias, the book can be evaluated without the necessity of questioning his basic premises. First it must be said that Brown calls attention to weaknesses in Freudian theory, *e.g.* basic urges, the "double tripartite division in the structure of the normal adult personality," repression, and reaction formation. The criticism of these points is that none of them has been satisfactorily brought to logical clarity. In spite of these criticisms the

author does not hesitate to make use of them in his exposition. The presentation of Freudian theories is the most lucid this reviewer has yet read. Furthermore, the use of the theories in the discussion of abnormal behavior in the eight chapters of Part IV entitled "Psychiatry" is consistent and clear.

It would be unfair to give the impression that Brown has written merely a psychoanalytic account of abnormal behavior for psychologists. Throughout the discussion one finds topological principles of interpretation skillfully blended with those of psychoanalysis. But with these theoretical bases it is evident that the author is confronted with the mind-body problem. He dismisses this in the preface with the statement that he is "adopting the organismic solution to the psychosomatic problem." This position he elucidates as "every sample of human behavior, normal or abnormal, presents both a physiological and a psychological problem." Such a statement is both a part truth (what about an anatomical, or a sociological problem) and a variable truth depending on the connotation of "psychological." That the present author is probably hiding the difficulty in words is suggested by one sentence from Chapter V: "Perceptions are stored in the mind, thanks to the memory process." (p. 101.)

Personality is defined as "not simply the sum total of all these traits but rather the way in which they are combined to give the individual his individuality." With this definition there can be no quarrel but it is not unique for either psychoanalysis or Gestalt psychology. Personality growth and differentiation is attributed chiefly if not exclusively to frustration. The importance of social and physical barriers cannot be denied, but that the frustration resulting from such barriers are all important is doubtful. Such a theory precludes any effect of facilitation afforded by interpersonal relations and theoretically at least, makes possible a human being with no personality.

In spite of the reviewer's reluctance to accept the Freudian premises upon which the argument of the book rests and in spite of his disagreement with certain other principles, he does not hesitate to claim that this is an important work. Dr. Brown has pointed out weaknesses in Freudian theory and supports possible experimental approaches to the problem. The reader feels that the book has a theoretical consistency unusual in textbooks on abnormal psychology. Furthermore, the book amply illustrates that abnormal psychology is something more than the description of abnormal behavior. While there might be some doubt as to the value of the book as a text in the usual course in abnormal psychology there can be no doubt that it is "must" reading for all advanced students in psychology.

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NEW BOOKS AND PAMPHLETS

Books and pamphlets for review should be sent to James P. Porter, Editor, JOURNAL OF APPLIED PSYCHOLOGY, Ohio University, Athens, Ohio.

Abstracts of Aviation Psychology. Civil Aeronautics Administration, United States Department of Commerce, Washington, D. C., September 1941.

Creative Group Work on the Campus. LOUISE PRICE. Bureau of Publications, Teachers College, Columbia University, New York, 1941. $3.25. 437 pp.

Diagnostic and Remedial Technique for Effective Study. FRANCIS P. ROBINSON. Harper & Brothers, New York, 1941. 318 pp.

Estado actual del concepto de las psicoses endocrinas. EMILIO MIRA. Imprenta de Alfredo Frascoll, Buenos Aires, 1941. 45 pp.

Fatigue and Hours of Service of Interstate Truck Drivers. Public Health Bulletin No. 265. BENJAMIN F. JONES, E. CUYLER HAMMOND, ROBERT H. FLINN. U. S. Public Health Service, Washington, D. C. 40 cents. 286 pp.

Get More Out of Life. CATHERINE GROVES. Association Press, 347 Madison Avenue, New York, 1941. $1.25. 136 pp.

Great Experiments in Psychology. Revised Edition. HENRY E. GARRETT. D. Appleton-Century Company, New York, 1941. $2.50. 452 pp.

Heredity and Environment. Material on Twins and Foster Children. R. S. WOODWORTH. Social Science Research Council, 230 Park Avenue, New York, 1941.

Infinite Man. H. V. GARD. Bruce Humphries, Inc., Boston, 1941. $2.50. 291 pp.

Intelligence, Power and Personality. GEORGE CRILE. McGraw-Hill Book Company (Whittlesey House, London). $3.00. 347 pp.

Language in Action. S. I. HAYAKAWA. Harcourt, Brace & Company, New York, 1941. $2.00. 245 pp.

Measuring the Intellectual and Cultural Backgrounds of Teaching Candidates. DAVID G. RYANS. Cooperative Test Service, Publications in Measurement and Guidance, August, 1941. 15 Amsterdam Avenue, New York. 28 pp.

Mental Hygiene. J. D. M. GRIFFIN, S. R. LAYCOCK and W. LINE. American Book Company, 1941. $1.40. 291 pp.

Methods of Correlation Analysis. Second Edition. MORDECAI EZEKIEL. John Wiley and Sons, New York, 1941. $5.00. 531 pp.

Myokinetic Psychodiagnosis: A New Technique of Exploring the Conative Trends of Personality. EMILIO MIRA. John Bale, Sons & Staples, Ltd. London, 1940. 21 pp.

Personal Factors in Safe Operation of Motor Vehicles. LEON BRODY. Center for Safety Education, Division of General Education, New York University, 1941. 75 cents. 96 pp.

The Prediction of Personal Adjustment. PAUL HORST, with collaboration of PAUL WALLIN and LOUIS GUTTMAN; assisted by FRIEDA BRIM WALLIN, JOHN A. CLAUSEN, ROBERT REED and ERICH ROSENTHAL. Social Science Research Council, 230 Park Avenue, New York, 1941. $2.00. 453 pp.

Psicologia Evolutiva del Niño y el Adolescence. EMILIO MIRA Y LOPEZ. Libreria y Editorial Ruiz, Rosario, 1941. 271 pp.

Retroactive Inhibition. ESTHER J. SWENSON. Studies in Education, No. 1, University of Minnesota Press, Minneapolis, Minn., 1941. $1.50. 59 pp.

A Study of Consumer Response to 40 CBS Sponsored Programs. ELMO ROPER. New York. 39 pp.

The U. S. College Graduate. F. LAWRENCE BABCOCK. Macmillan Company, New York, 1941. $1.50. 112 pp.

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Journal of Comparative Psychology—Baltimore: The Williams & Wilkins Co. Subscription $7.00 per volume of [illegible]. Two volumes every year. Acting Managing Editor, Roy M. Dorcus. Founded 1921.

Comparative Psychology Monographs—Baltimore: Williams & Wilkins Co. Subscription $6.00. 400 pages per volume. Roy M. Dorcus, Managing Editor. Published without fixed dates, each number a single research. Founded 1922.

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Psychological Abstracts—Ohio State University, Columbus, Ohio: American Psychological Association. Subscription $7.00 a year ($7.25 foreign). 700 pages ann. Edited by W. S. Hunter. Monthly. Abstracts of psychological literature. Founded 1927.

Journal of Genetic Psychology—Provincetown, Mass.: The Journal Press. Subscription $14.00 per annum; $7.00 per volume. 1,000 pages annually (2 volumes). Edited by Carl Murchison and an international cooperating board. Quarterly. Child behavior, animal behavior, and comparative psychology. Founded 1891.

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Mental Measurement Monographs—Baltimore: The Williams & Wilkins Company. Subscription $5.00. 400 pages annually. Edited by Knight Dunlap and Buford Johnson. Published without fixed dates, each number a single research. Founded 1925.

Studies in Psychology and Psychiatry—Baltimore: The Williams & Wilkins Company. Subscription $5.00. 400 pages annually. Edited by Edward A. Pace. Published without fixed dates, each number a single research. Founded 1926.

Journal of Educational Psychology—Baltimore, Md.: Warwick & York. Subscription $6.00. Edited by Jack W. Dunlap, Harold E. Jones, and Percival M. Symonds. Published monthly except June to August. Founded 1910.

Child Development—Baltimore, Md.: Williams & Wilkins Company. Subscription $5.00. 400 pages annually. Edited by Buford Johnson. Quarterly. Founded 1930.

Character and Personality—Durham, N. C.: Duke University Press. Subscription $2.00 per annum. Quarterly. Published simultaneously in Great Britain and the United States. Edited by Charles E. Spearman (London) and Karl Zener (Duke University). Founded 1932.

Journal of Psychology—Provincetown, Mass.: The Journal Press. Subscription $14.00 per annum; $7.00 per volume. 1000-1200 pages annually. Immediate publication for any accepted manuscript. Edited by Carl Murchison and an editorial board. Quarterly. The general field of psychology. Founded 1935.

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American Journal of Psychology—Ithaca, N. Y.: Cornell University. Subscription $5.00. [illegible] pages annually. Edited by E. B. Titchener, K. F. Washburn, M. [illegible] Dodge, E. G. Boring. Quarterly. General and experimental psychology. Founded 1887.

Journal of General Psychology—Provincetown, Mass.: The Journal Press. Subscription $10.00 per annum; $7.50 per volume. 500 pages annually (2 volumes). Edited by Carl Murchison and an international cooperating board. Quarterly. Experimental, theoretical, clinical and historical psychology. Founded 1927.

Psychological Review—Ohio State University, Columbus, Ohio: Psychological Review Company. Subscription $5.50 [illegible], $6.75). Single copies, $1.00. 640 pages annually. Bi-monthly. Original contributions only. Edited by Margaret F. Langfeld. Founded 1894.

Psychological Monographs—Ohio State University, Columbus, Ohio: Psychological Review Company. Subscription per volume, $6.00. 500 pages. Edited by John F. Dashiell. Experimental investigations and issues number more specialized. Founded 1895.

Psychological Bulletin—Ohio State University, Columbus, Ohio: Psychological Review Company. Subscription $6.00 [illegible]. Monthly (10 numbers). Edited by Knox C. McGinnis. Critical literature. Founded 1904.

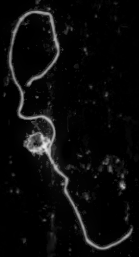
Archives of Psychology—New York: Columbia University. Subscription $5.00 per year. [illegible] S. Woodworth. [illegible] Neal Miller, and Theodore [illegible]. Experimental study. Founded 1906.

Journal of Abnormal and Social Psychology—[illegible] University, Columbus, Ohio: Journal [illegible]. Subscription $5.00. Foreign $5.50. Single numbers, $1.00. Edited by Knight Dunlap, W. Allport, [illegible]. 400 pages annually. Bi-monthly. Abnormal psychology. Founded 1906.

Psychological Clinic—Philadelphia: Psychological Clinic Press. Subscription $2.00. Foreign $2.25. Edited by Lightner Witmer. [illegible] Quarterly. Orthogenic psychology. Founded 1907.

Psychoanalytic Review—Washington, D. C.: [illegible] St., N.W. Subscription $4.00. 400 pages annually. [illegible] quarterly. Edited by W. A. White and [illegible]. Founded 1913.

Journal of Experimental Psychology—Ohio State University, Columbus, Ohio. Bimonthly, two volumes per year, each volume of six numbers containing about 600 pages. Experimental. Subscription $14.00 ($7.00 per volume). Edited by [illegible]. Founded 1916.

Journal of Applied Psychology—Lancaster, Pa.: Science Press Printing Co. Subscription price $3.00. 300 pages annually. Quarterly. Edited by James R. Foster, Ohio [illegible] University, Athens, Ohio. Founded 1917.

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